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**Statistical Analysis of the FleetNet
Highway Movement Patterns**

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Statistical Analysis of the FleetNet Highway Movement Patterns

Roland Krüger* Holger Füßler*[†] Marc Torrent-Moreno^{‡†}
Matthias Transier* Hannes Hartenstein[‡] Wolfgang Effelsberg*

The major objective of the FleetNet project [5, 2] was to develop a platform for inter-vehicle communication based on the principles of ad-hoc communication. In its process, unicast datagram routing served as one of the research focuses to identify and conquer the challenges of data forwarding in vehicular scenarios. Among others, car movement on highways was a scenario we paid attention to. To serve as a basis for network simulation, DaimlerChrysler provided realistic highway movement traces resulting from their own vehicular movement research [3].

This document is the complement to the Technical Report [4] where we describe the work done on the DaimlerChrysler traces in order to: *a)* model bidirectional scenarios, *b)* obtain Tcl scenarios compatible with the ns-2 simulator, and *c)* understand the vehicle distribution and movement of the resulting scenarios from a connectivity point of view. This report consists of the whole statistical evaluation of the basic set of scenarios listed in [4] and available to the VANET (Vehicular Ad-Hoc Network) community at [1]. We highly recommend the reading of [4], which describes the structure of this document and all parameters being analyzed.

References

- [1] HWGui and HighwayMovement Homepage. <http://www.informatik.uni-mannheim.de/pi4/projects/HWGui/>.
- [2] The FleetNet Project Homepage. <http://www.et2.tu-harburg.de/fleetnet/>.
- [3] H. Füßler, M. Mauve, H. Hartenstein, M. Käsemann, and D. Vollmer. A Comparison of Routing Strategies for Vehicular Ad Hoc Networks. Technical Report TR-02-003, Department of Computer Science, University of Mannheim, July 2002.
- [4] H. Füßler, M. Torrent-Moreno, R. Krüger, M. Transier, H. Hartenstein, and W. Effelsberg. Studying Vehicle Movements on Highways and their Impact on Ad-Hoc Connectivity. Technical Report TR-2005-003, Department of Mathematics and Computer Science, University of Mannheim, 2005.
- [5] H. Hartenstein, B. Bochow, A. Ebner, M. Lott, M. Radimirsch, and D. Vollmer. Position-aware ad hoc wireless networks for inter-vehicle communications: The FleetNet project. In *Proc. of ACM MobiHoc '01*, Long Beach, California, October 2001.

*Roland Krüger, Holger Füßler, Matthias Transier, and Wolfgang Effelsberg are with ‘Computer Science IV’ at the University of Mannheim.

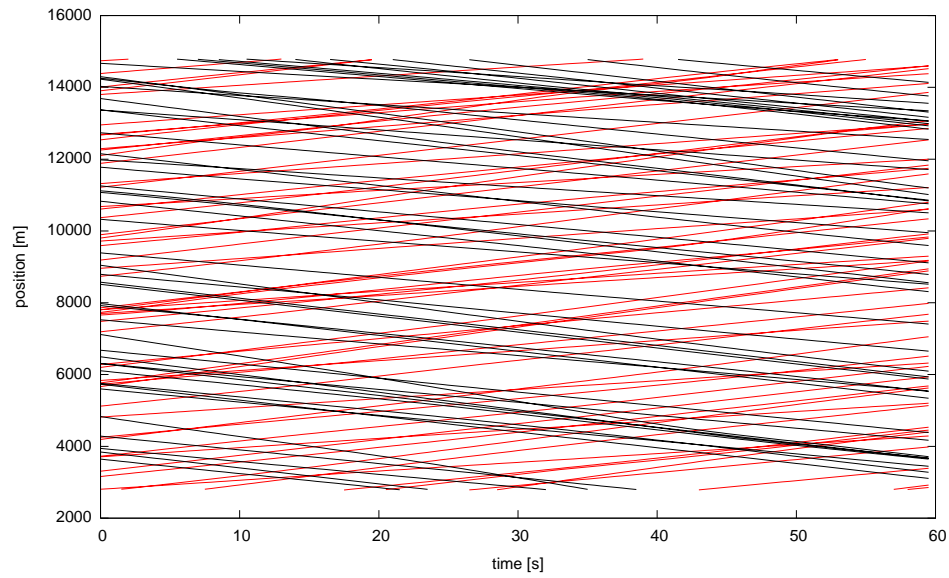
[†]Holger Füßler and Marc Torrent-Moreno acknowledge the support of the German Ministry for Education and Research (BMB+F) for the “Network-on-Wheels” project under contract no. 01AK064F.

[‡]Marc Torrent-Moreno and Hannes Hartenstein are with the Institute of Telematics at the University of Karlsruhe.

A. Two lanes per direction

A.1. Scenario “mvmnt-hwgui-02lpd-02npkm-01.txt”

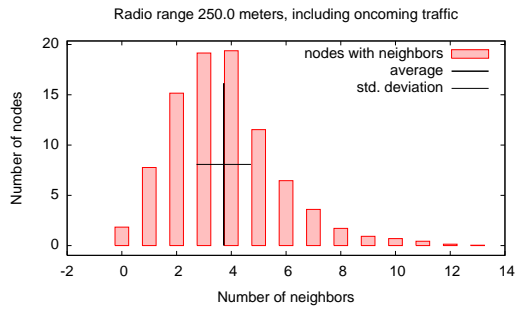
A.1.1. Trajectory plot



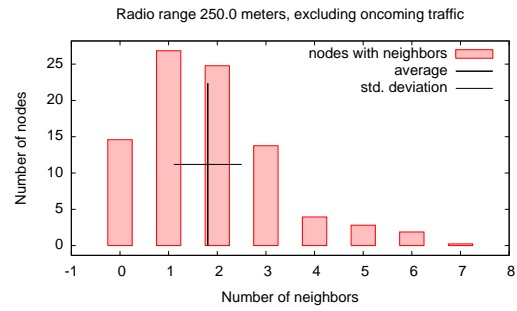
A.1.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	39.12
Number of nodes	108
Number of nodes (up)	58
Number of nodes (down)	50
Average node density [N/km]	7.70
Nodes per km and lane (up) [$N/(km \cdot lane)$]	2
Nodes per km and lane (down) [$N/(km \cdot lane)$]	2
Average number of active nodes	92.43
Average number of active nodes (up)	48.98
Average number of active nodes (down)	43.46
Number of lanes (up)	2
Length of valid area [m]	12006.20
Valid area start [m]	2783.00
Valid area end [m]	14789.20
Maximum CTR (both dirs) [m]	800.60

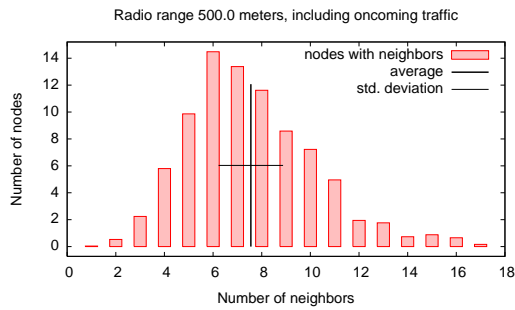
A.1.3. Neighbor histogram



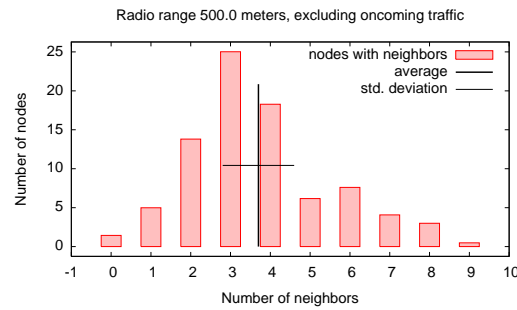
Average:	3.72
Variance:	3.96
Standard deviation:	1.99



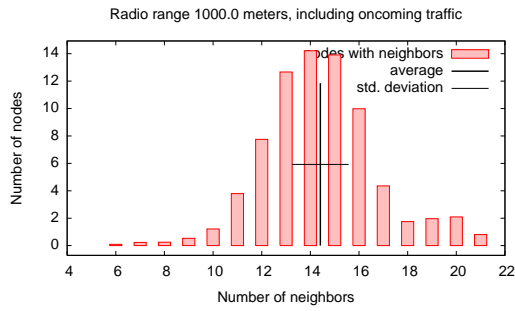
Average:	1.81
Variance:	1.94
Standard deviation:	1.39



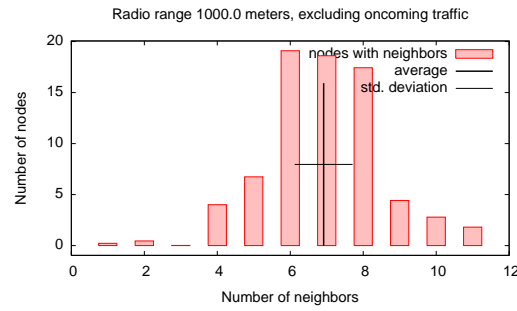
Average:	7.55
Variance:	7.02
Standard deviation:	2.65



Average:	3.70
Variance:	3.23
Standard deviation:	1.80



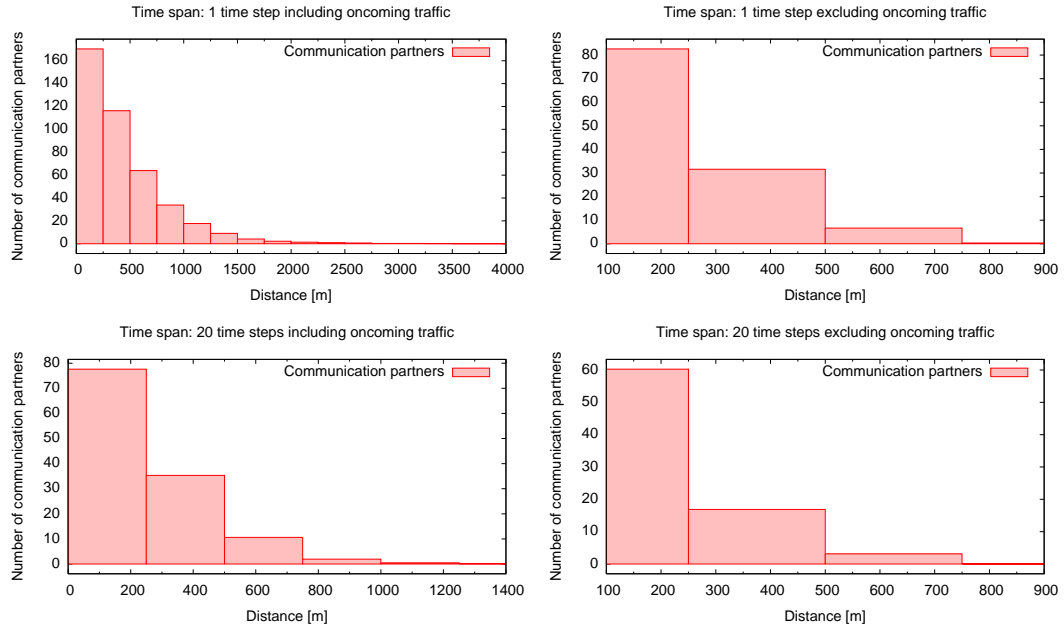
Average:	14.41
Variance:	5.41
Standard deviation:	2.33



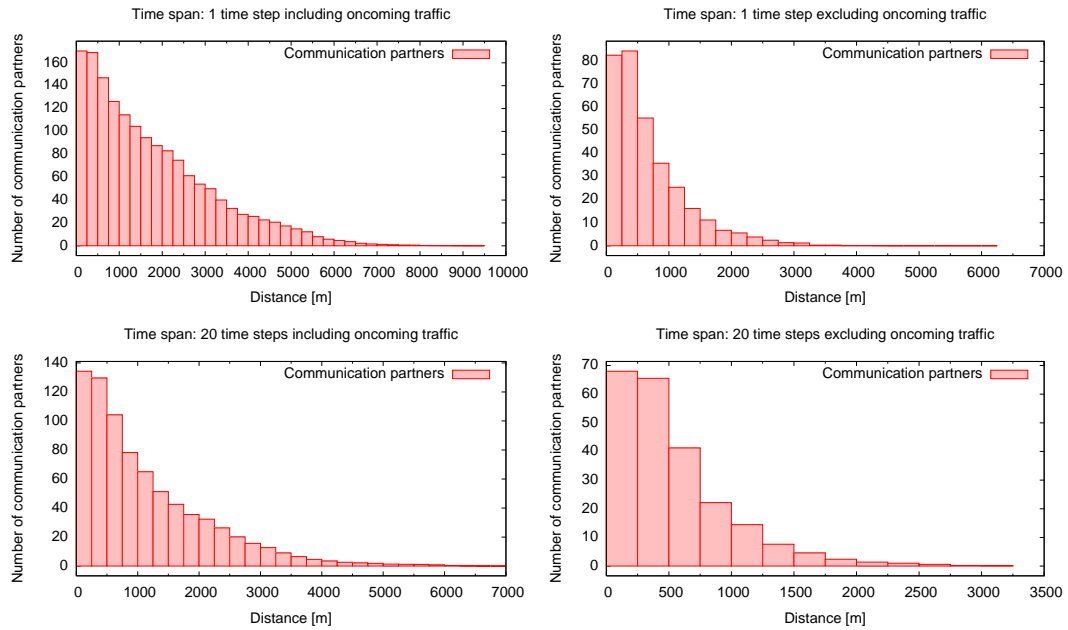
Average:	6.92
Variance:	2.52
Standard deviation:	1.59

A.1.4. Communication partner histogram

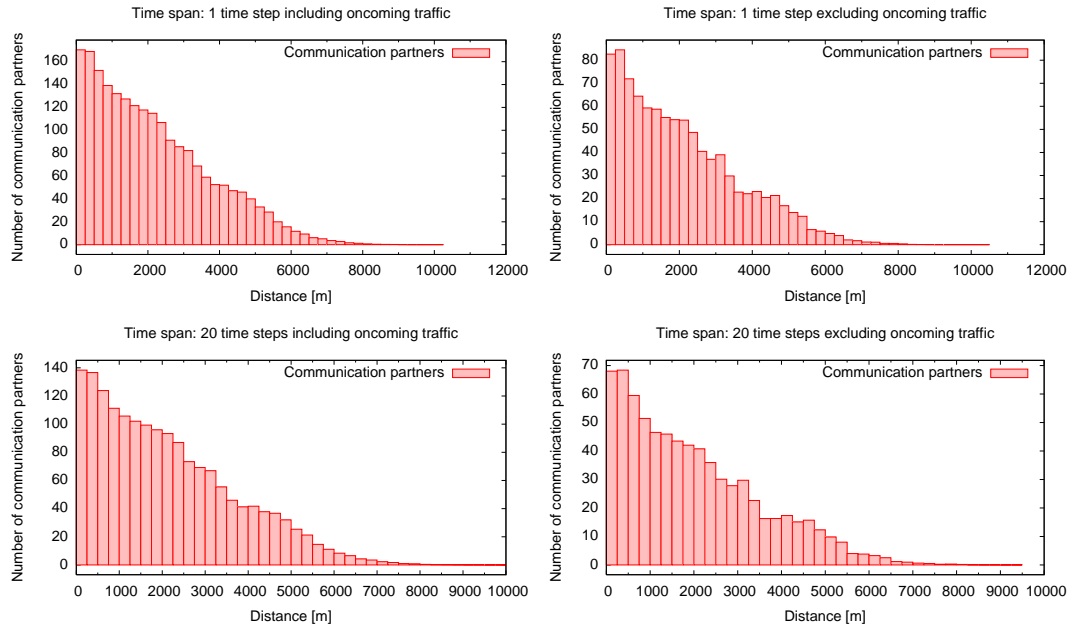
Radio range: 250.0 meters, bin size: 250.0 meters



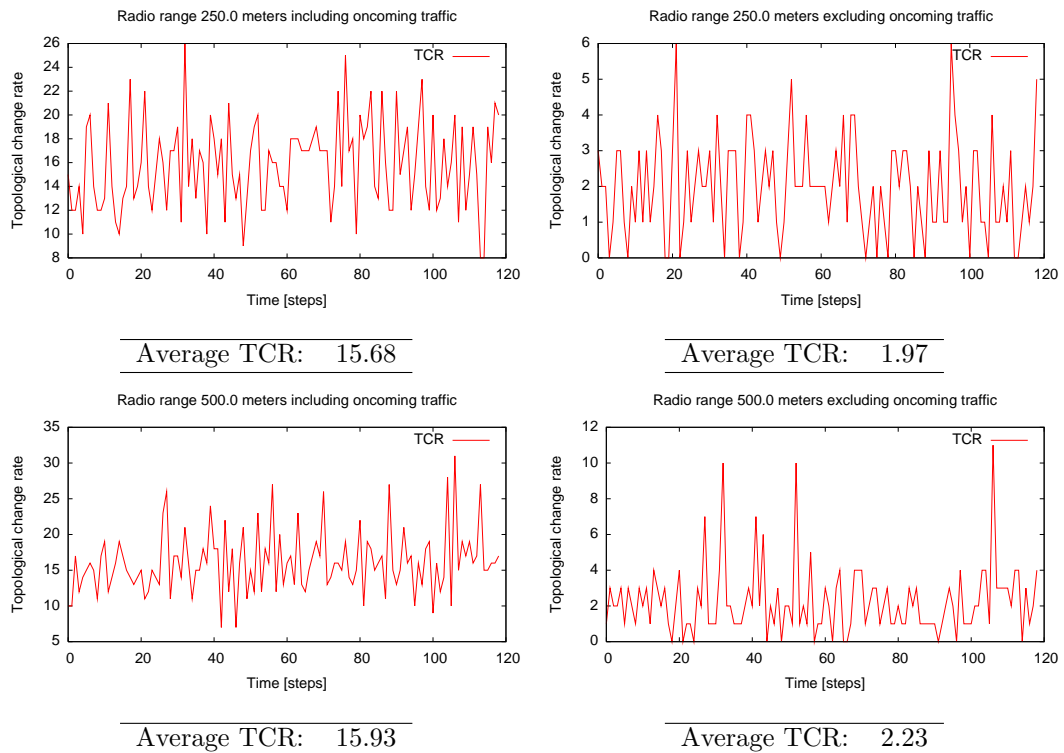
Radio range: 500.0 meters, bin size: 250.0 meters

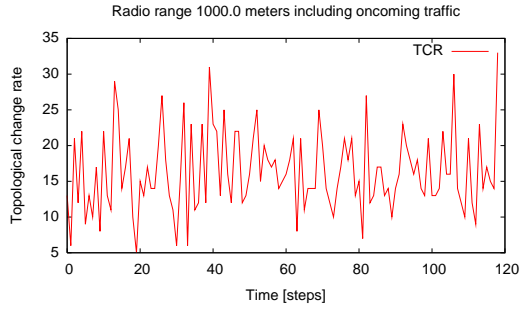


Radio range: 1000.0 meters, bin size: 250.0 meters

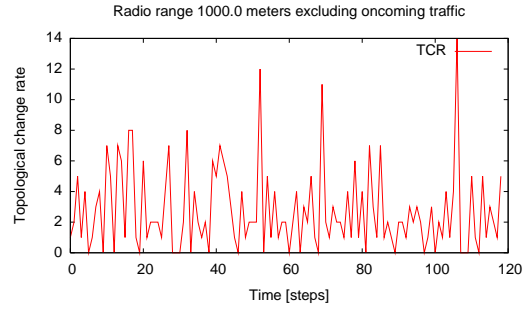


A.1.5. Topological Change Rate (TCR)



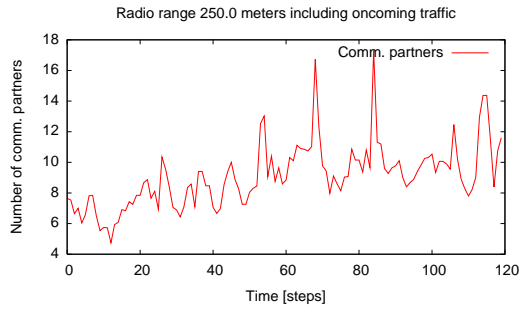


Average TCR: 16.18

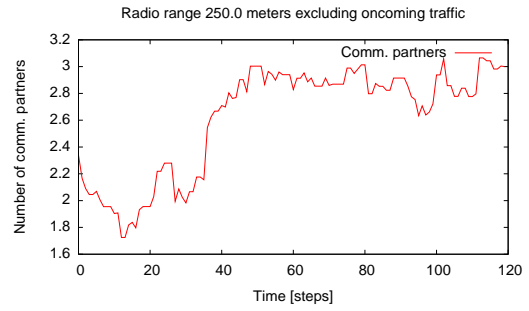


Average TCR: 2.70

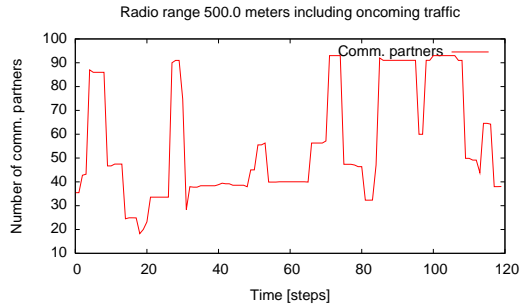
A.1.6. Total number of communication partners



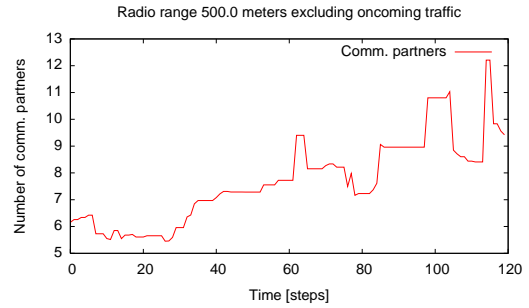
Avg. comm. partners: 9.09
Avg. active nodes: 92.43



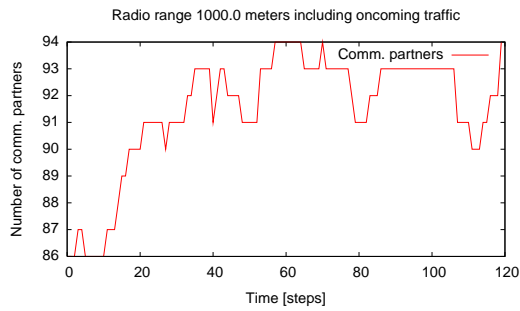
Avg. comm. partners: 2.62
Avg. active nodes: 92.43



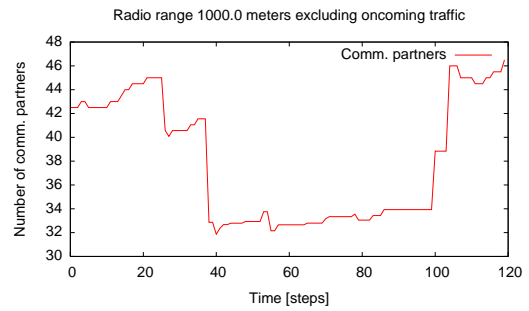
Avg. comm. partners: 55.99
Avg. active nodes: 92.43



Avg. comm. partners: 7.68
Avg. active nodes: 92.43

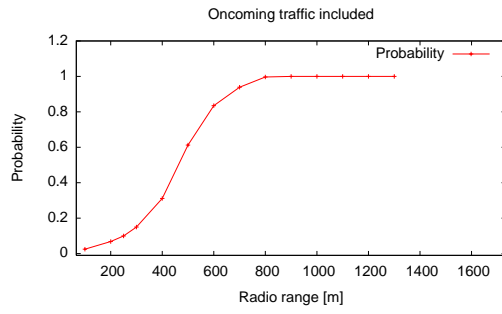


Avg. comm. partners: 91.43
Avg. active nodes: 92.43

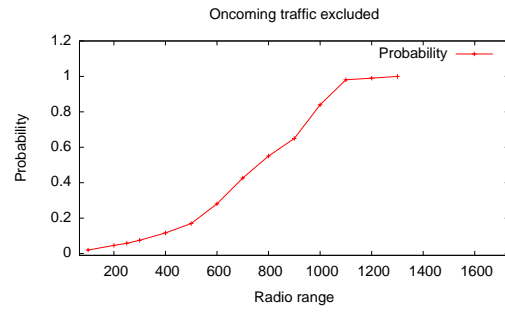


Avg. comm. partners: 37.98
Avg. active nodes: 92.43

A.1.7. Probability of being able to communicate with an arbitrary node



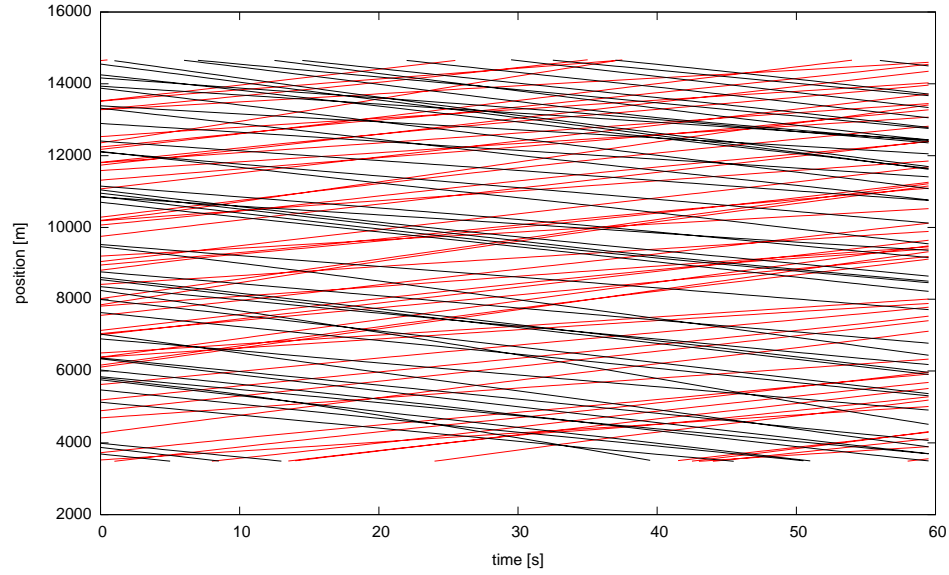
100.0 m:	0.02
200.0 m:	0.07
250.0 m:	0.10
300.0 m:	0.15
400.0 m:	0.31
500.0 m:	0.61
600.0 m:	0.83
700.0 m:	0.94
800.0 m:	1.00
900.0 m:	1.00
1000.0 m:	1.00
1100.0 m:	1.00
1200.0 m:	1.00
1300.0 m:	1.00



100.0 m:	0.02
200.0 m:	0.05
250.0 m:	0.06
300.0 m:	0.07
400.0 m:	0.12
500.0 m:	0.17
600.0 m:	0.28
700.0 m:	0.43
800.0 m:	0.55
900.0 m:	0.65
1000.0 m:	0.84
1100.0 m:	0.98
1200.0 m:	0.99
1300.0 m:	1.00

A.2. Scenario “mvmnt-hwgui-02lpd-02-02npkm-02.txt”

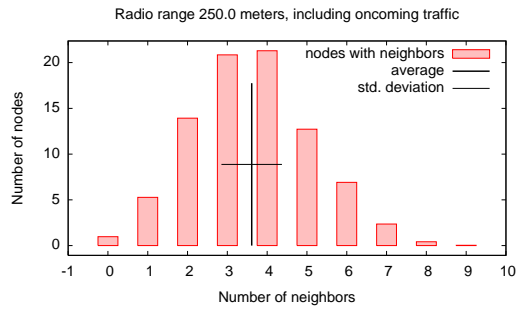
A.2.1. Trajectory plot



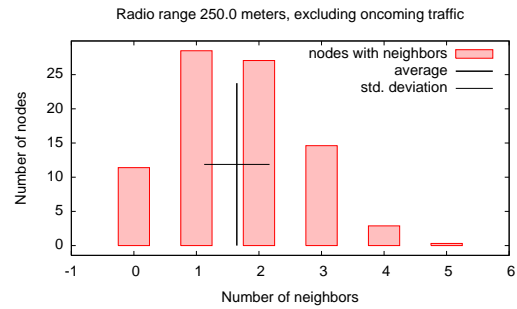
A.2.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	39.27
Number of nodes	105
Number of nodes (up)	55
Number of nodes (down)	50
Average node density [N/km]	7.90
Nodes per km and lane (up) [$N/(km \cdot lane)$]	2
Nodes per km and lane (down) [$N/(km \cdot lane)$]	2
Average number of active nodes	88.38
Average number of active nodes (up)	46.39
Average number of active nodes (down)	41.98
Number of lanes (up)	2
Length of valid area [m]	11189.90
Valid area start [m]	3481.90
Valid area end [m]	14671.80
Maximum CTR (both dirs) [m]	762.00

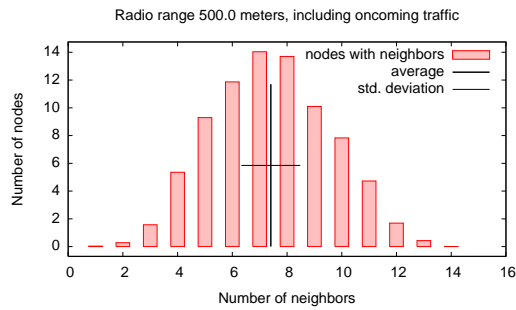
A.2.3. Neighbor histogram



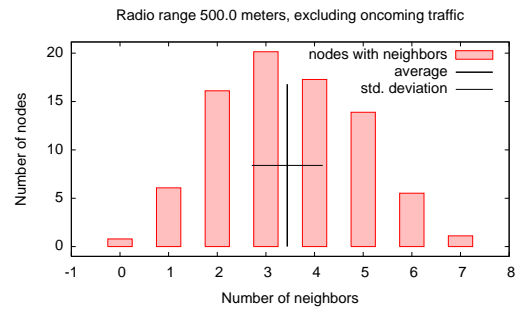
Average:	3.61
Variance:	2.31
Standard deviation:	1.52



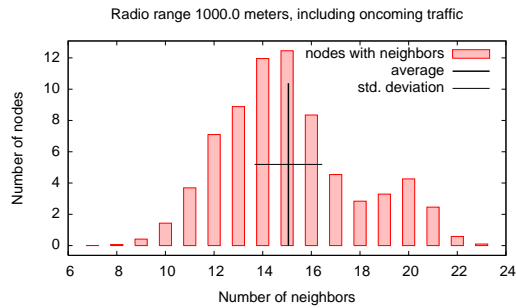
Average:	1.65
Variance:	1.09
Standard deviation:	1.04



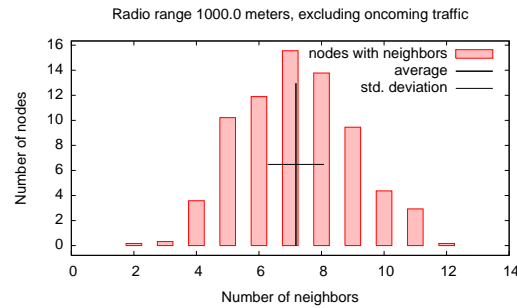
Average:	7.41
Variance:	4.64
Standard deviation:	2.15



Average:	3.44
Variance:	2.13
Standard deviation:	1.46



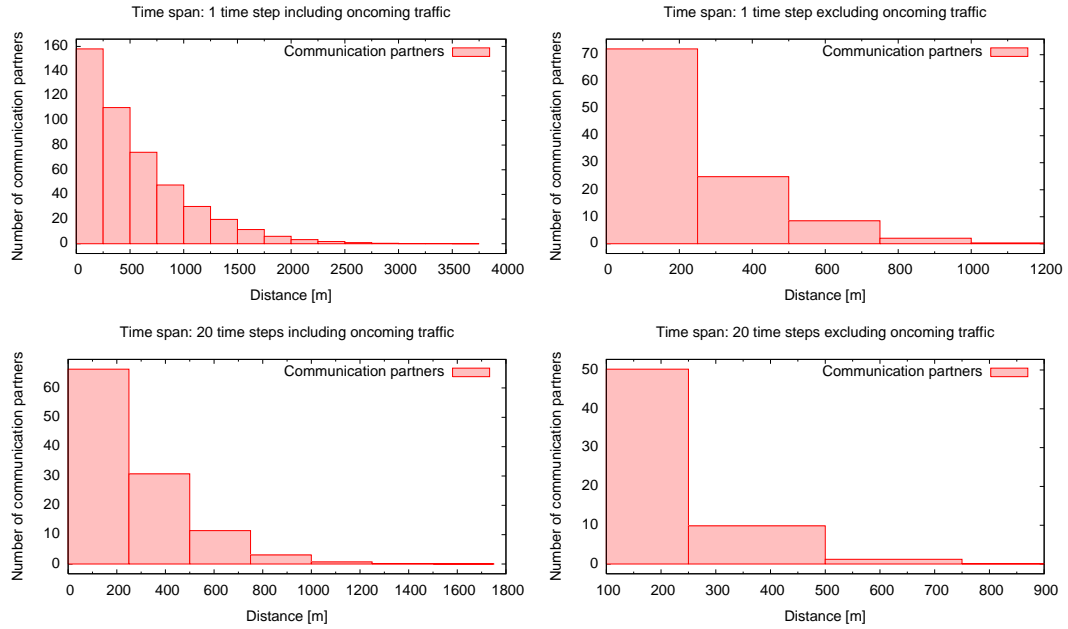
Average:	15.06
Variance:	7.73
Standard deviation:	2.78



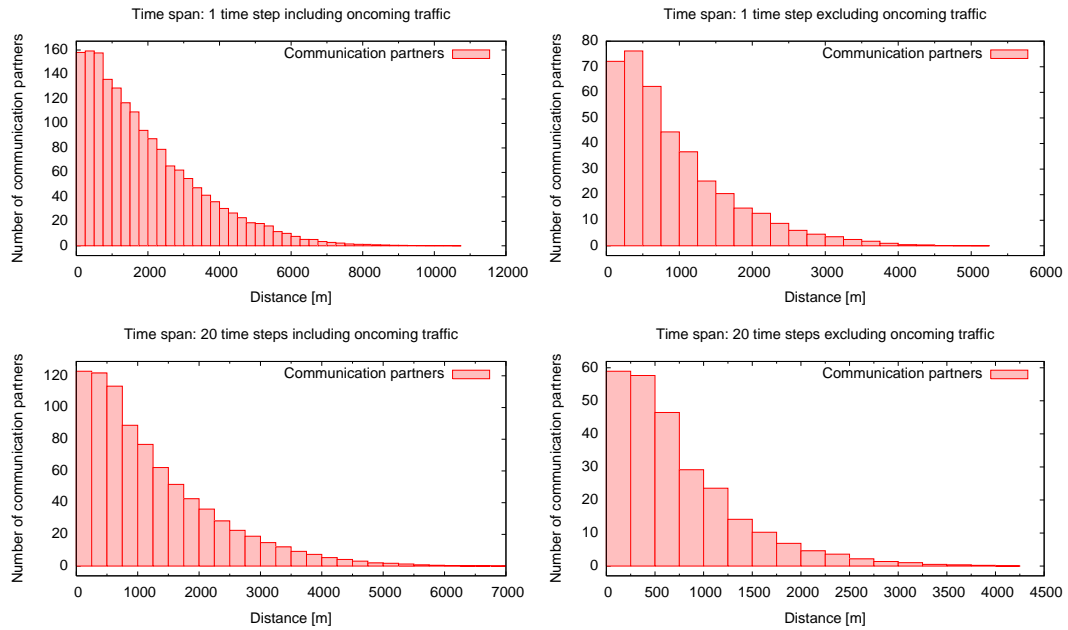
Average:	7.18
Variance:	3.24
Standard deviation:	1.80

A.2.4. Communication partner histogram

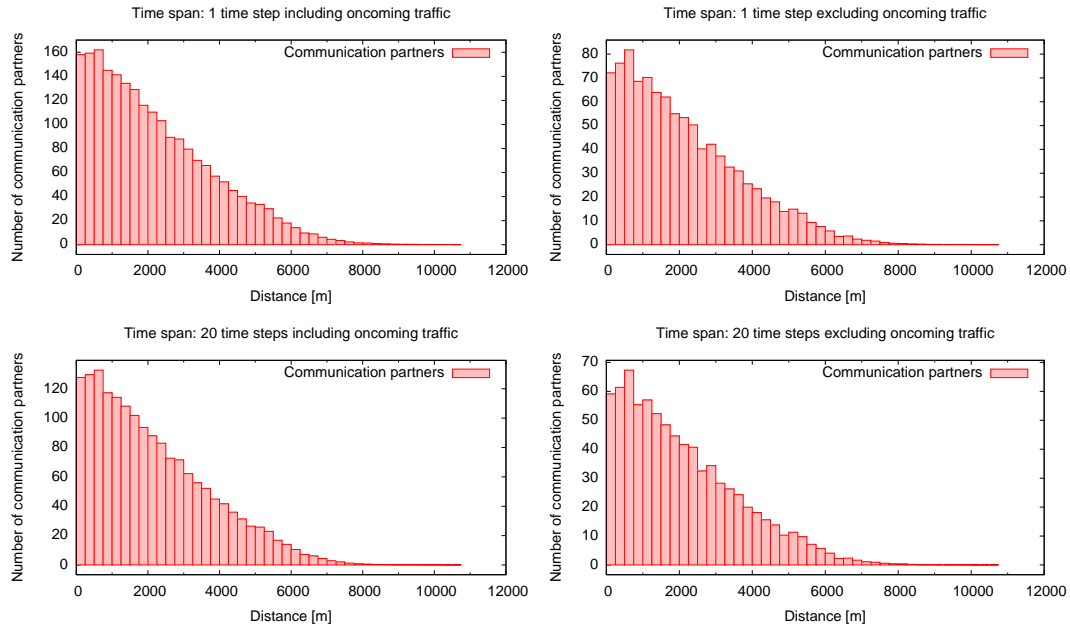
Radio range: 250.0 meters, bin size: 250.0 meters



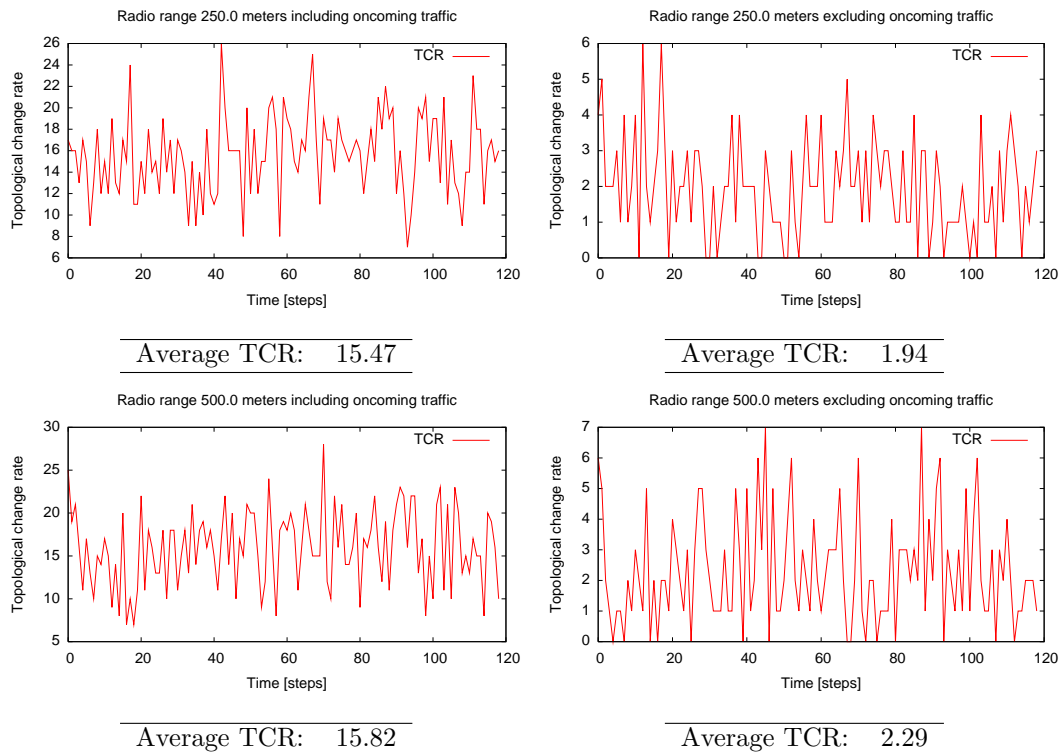
Radio range: 500.0 meters, bin size: 250.0 meters

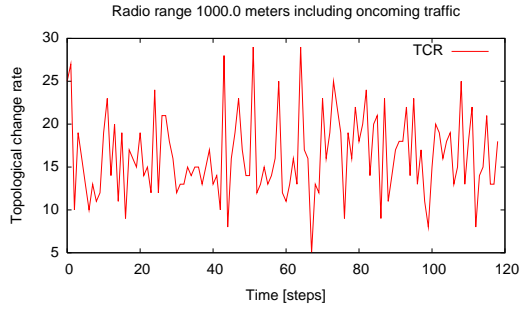


Radio range: 1000.0 meters, bin size: 250.0 meters

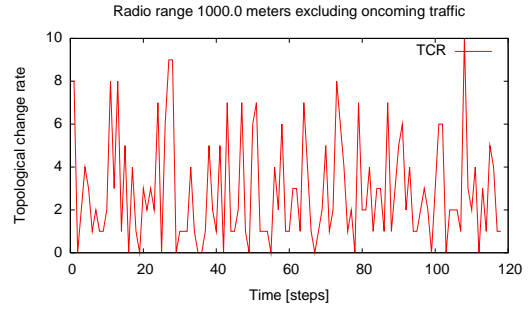


A.2.5. Topological Change Rate (TCR)



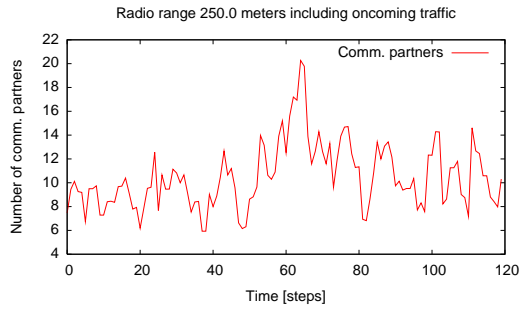


Average TCR: 16.19

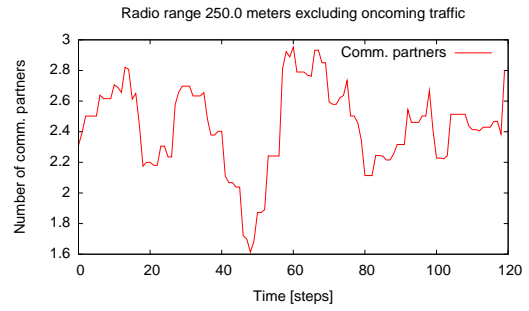


Average TCR: 2.84

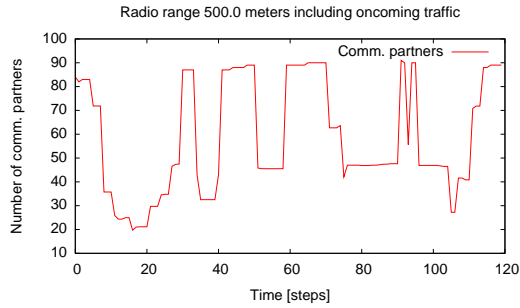
A.2.6. Total number of communication partners



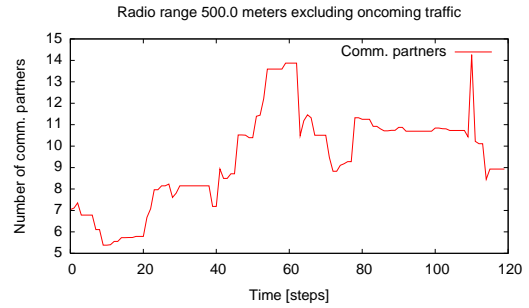
Avg. comm. partners: 10.49
Avg. active nodes: 88.38



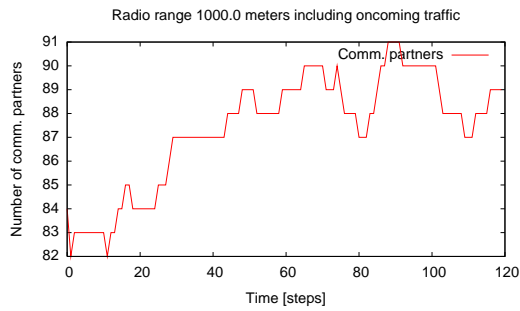
Avg. comm. partners: 2.43
Avg. active nodes: 88.38



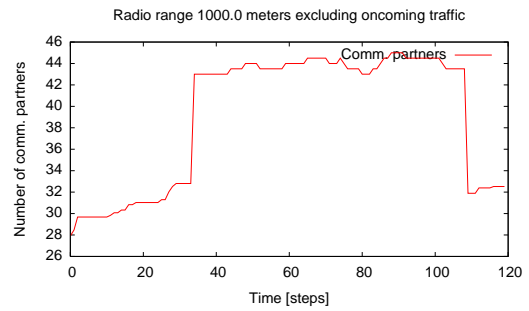
Avg. comm. partners: 58.51
Avg. active nodes: 88.38



Avg. comm. partners: 9.46
Avg. active nodes: 88.38

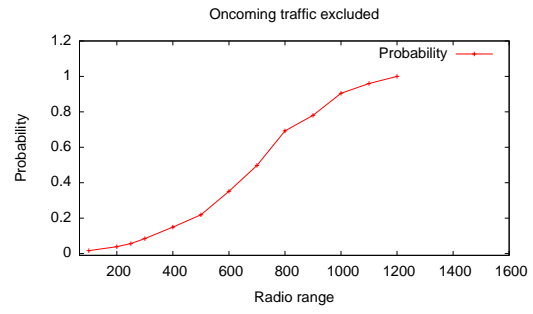
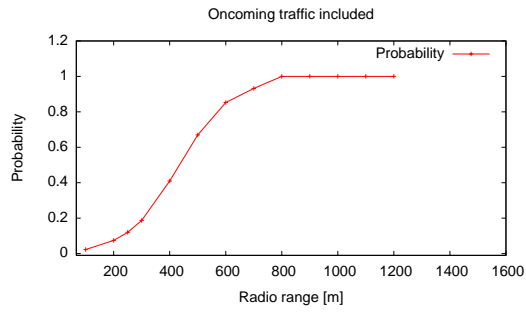


Avg. comm. partners: 87.38
Avg. active nodes: 88.38



Avg. comm. partners: 39.07
Avg. active nodes: 88.38

A.2.7. Probability of being able to communicate with an arbitrary node

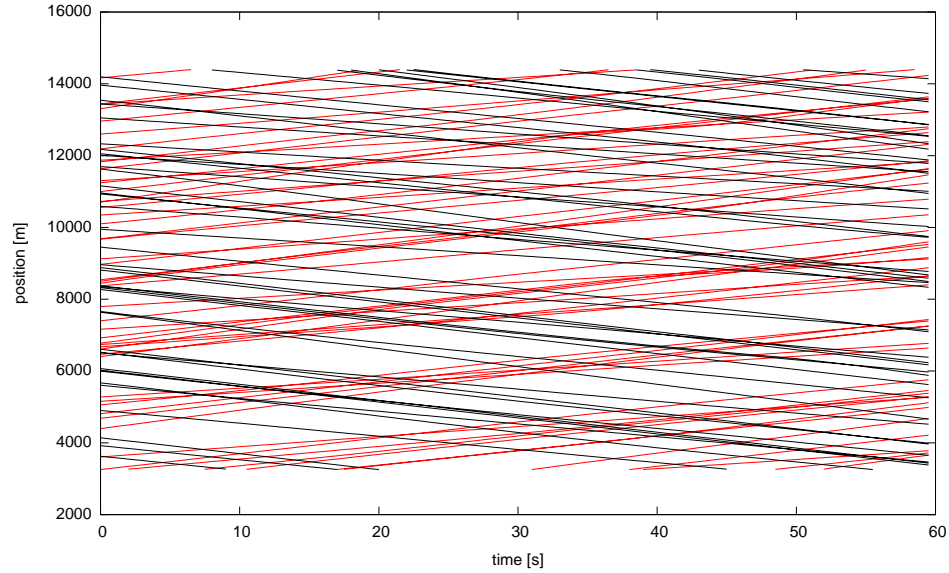


100.0 m:	0.02
200.0 m:	0.07
250.0 m:	0.12
300.0 m:	0.19
400.0 m:	0.41
500.0 m:	0.67
600.0 m:	0.85
700.0 m:	0.93
800.0 m:	1.00
900.0 m:	1.00
1000.0 m:	1.00
1100.0 m:	1.00
1200.0 m:	1.00

100.0 m:	0.02
200.0 m:	0.04
250.0 m:	0.06
300.0 m:	0.08
400.0 m:	0.15
500.0 m:	0.22
600.0 m:	0.35
700.0 m:	0.50
800.0 m:	0.69
900.0 m:	0.78
1000.0 m:	0.90
1100.0 m:	0.96
1200.0 m:	1.00

A.3. Scenario “mvmnt-hwgui-02lpd-02npkm-03.txt”

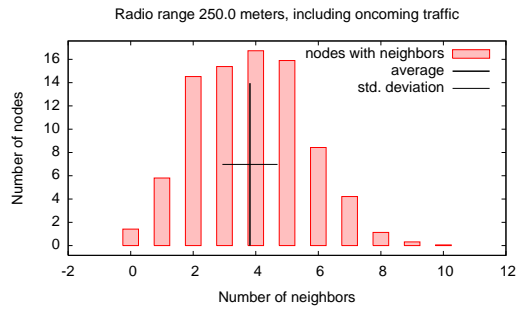
A.3.1. Trajectory plot



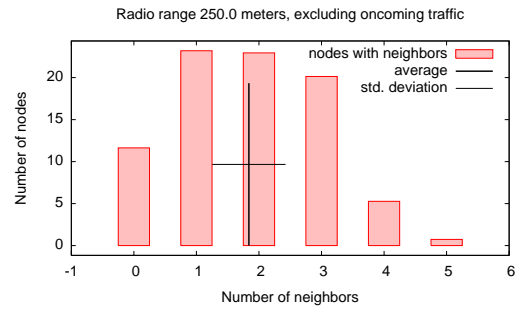
A.3.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	38.67
Number of nodes	106
Number of nodes (up)	56
Number of nodes (down)	50
Average node density [N/km]	7.87
Nodes per km and lane (up) [$N/(km \cdot lane)$]	2
Nodes per km and lane (down) [$N/(km \cdot lane)$]	2
Average number of active nodes	87.76
Average number of active nodes (up)	46.47
Average number of active nodes (down)	41.29
Number of lanes (up)	2
Length of valid area [m]	11146.10
Valid area start [m]	3251.50
Valid area end [m]	14397.60
Maximum CTR (both dirs) [m]	1019.30

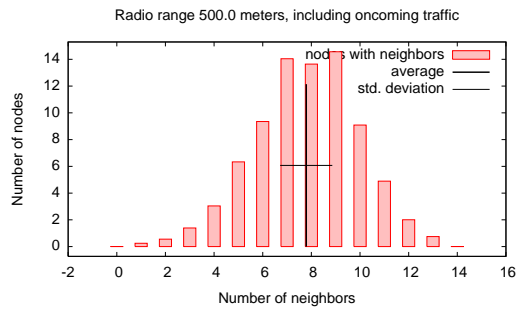
A.3.3. Neighbor histogram



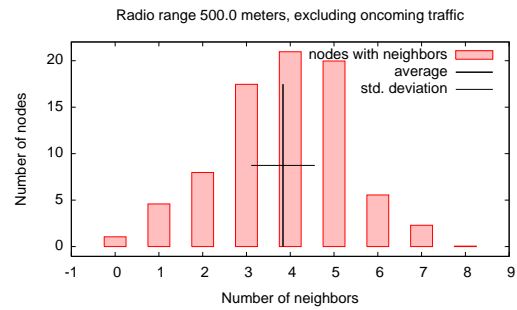
Average:	3.81
Variance:	3.11
Standard deviation:	1.76



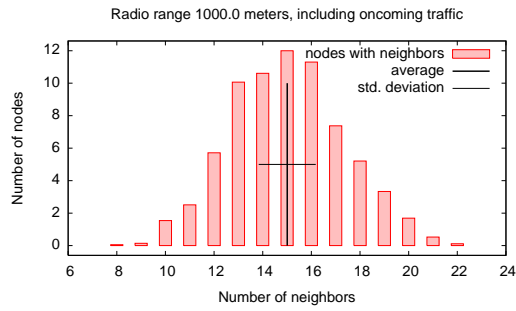
Average:	1.84
Variance:	1.38
Standard deviation:	1.17



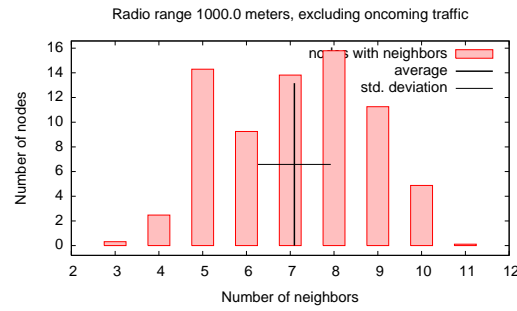
Average:	7.79
Variance:	4.60
Standard deviation:	2.14



Average:	3.83
Variance:	2.12
Standard deviation:	1.45



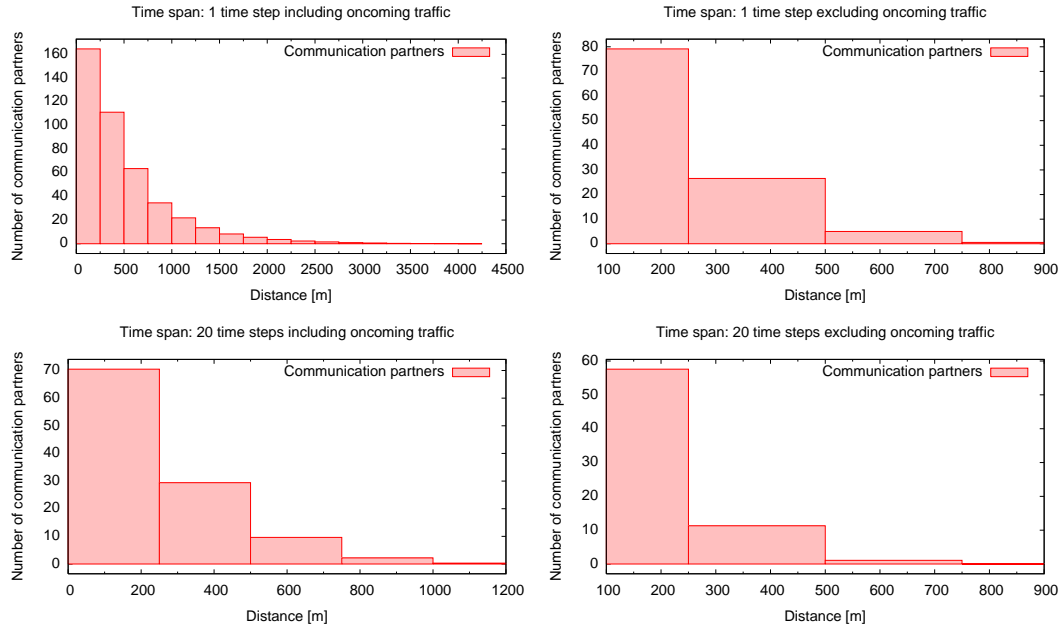
Average:	15.01
Variance:	5.50
Standard deviation:	2.34



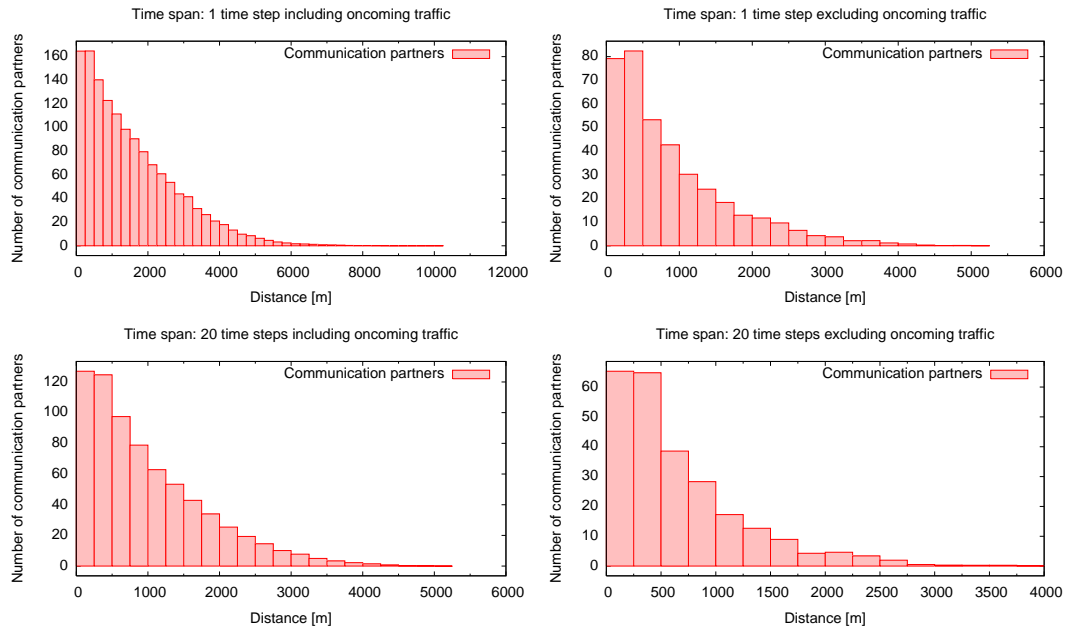
Average:	7.10
Variance:	2.77
Standard deviation:	1.66

A.3.4. Communication partner histogram

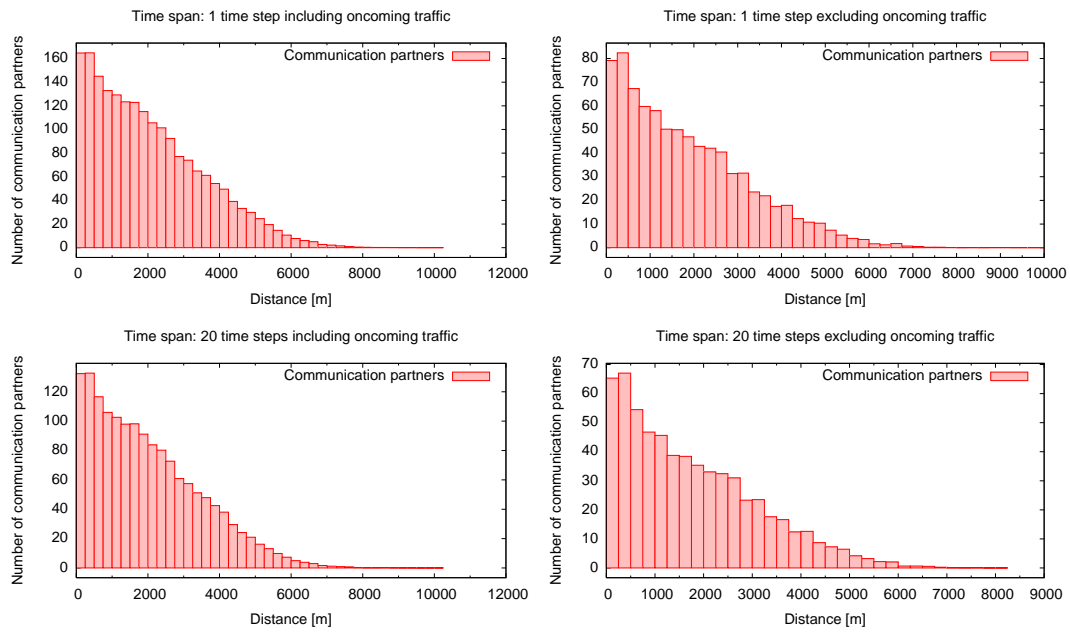
Radio range: 250.0 meters, bin size: 250.0 meters



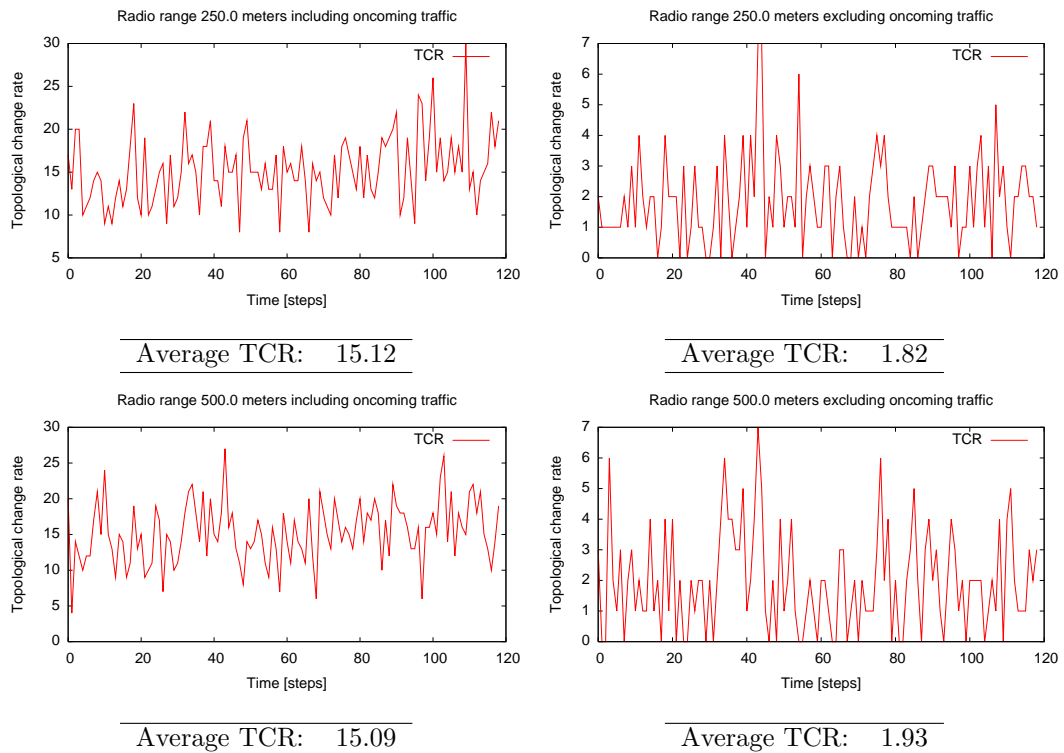
Radio range: 500.0 meters, bin size: 250.0 meters

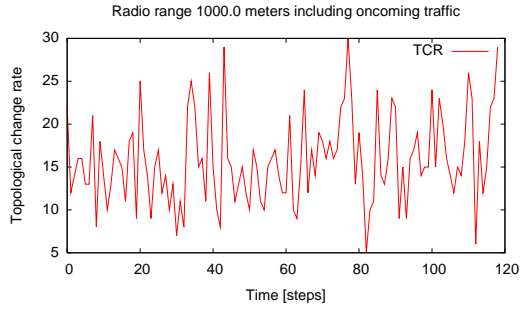


Radio range: 1000.0 meters, bin size: 250.0 meters

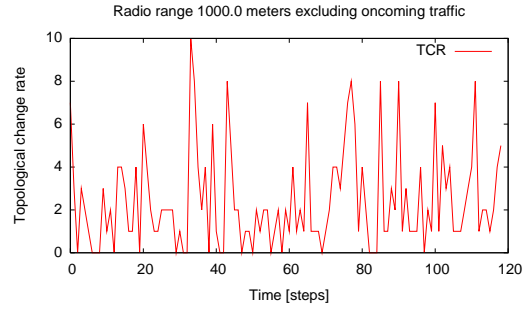


A.3.5. Topological Change Rate (TCR)



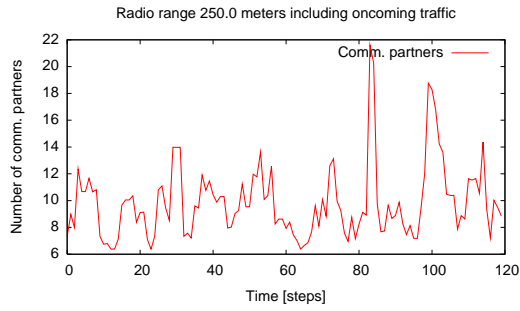


Average TCR: 15.66

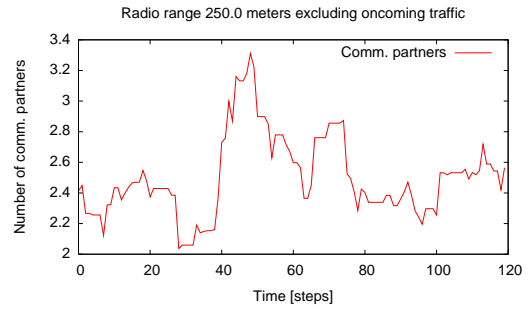


Average TCR: 2.40

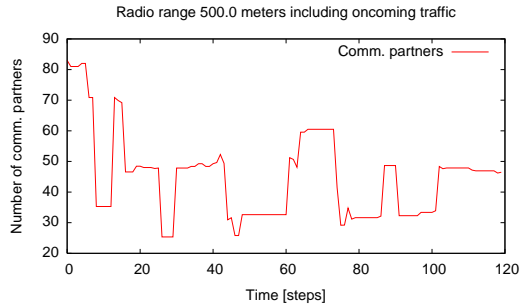
A.3.6. Total number of communication partners



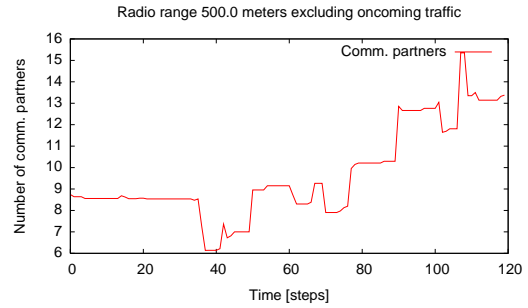
Avg. comm. partners: 9.85
Avg. active nodes: 87.76



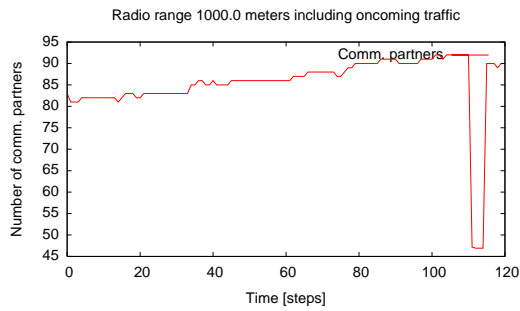
Avg. comm. partners: 2.50
Avg. active nodes: 87.76



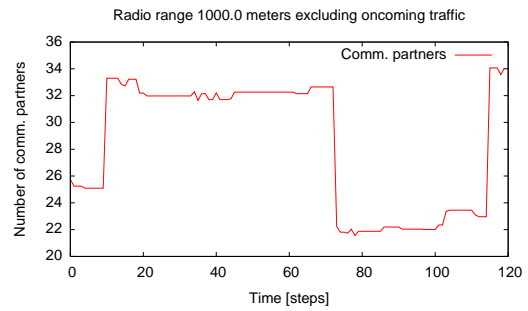
Avg. comm. partners: 44.99
Avg. active nodes: 87.76



Avg. comm. partners: 9.64
Avg. active nodes: 87.76

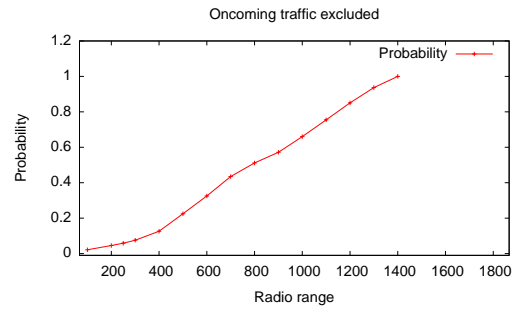
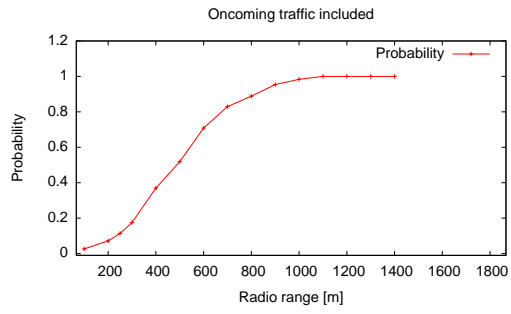


Avg. comm. partners: 85.32
Avg. active nodes: 87.76



Avg. comm. partners: 28.30
Avg. active nodes: 87.76

A.3.7. Probability of being able to communicate with an arbitrary node

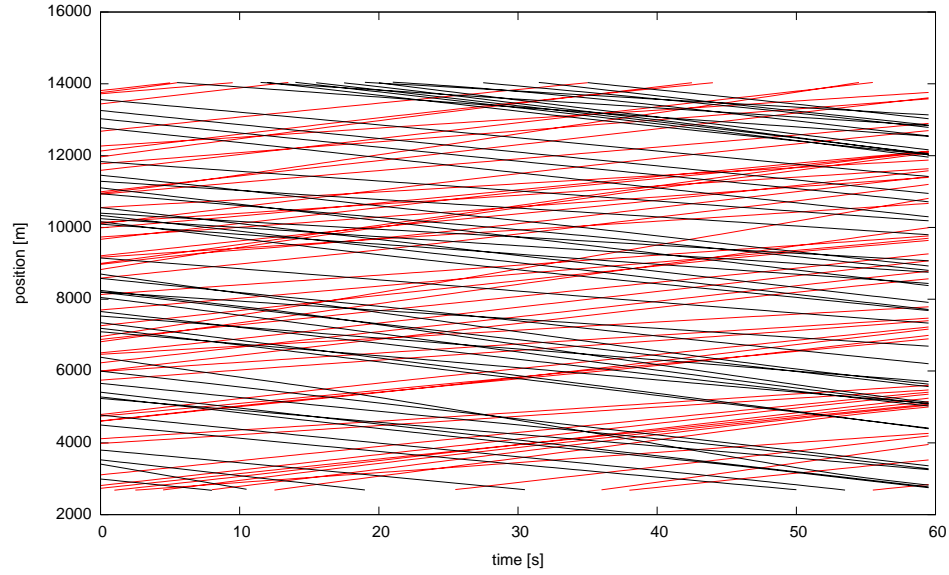


100.0 m:	0.03
200.0 m:	0.07
250.0 m:	0.11
300.0 m:	0.18
400.0 m:	0.37
500.0 m:	0.52
600.0 m:	0.71
700.0 m:	0.83
800.0 m:	0.89
900.0 m:	0.95
1000.0 m:	0.98
1100.0 m:	1.00
1200.0 m:	1.00
1300.0 m:	1.00
1400.0 m:	1.00

100.0 m:	0.02
200.0 m:	0.05
250.0 m:	0.06
300.0 m:	0.08
400.0 m:	0.13
500.0 m:	0.22
600.0 m:	0.33
700.0 m:	0.43
800.0 m:	0.51
900.0 m:	0.57
1000.0 m:	0.66
1100.0 m:	0.75
1200.0 m:	0.85
1300.0 m:	0.94
1400.0 m:	1.00

A.4. Scenario “mvmnt-hwgui-02lpd-02npkm-04.txt”

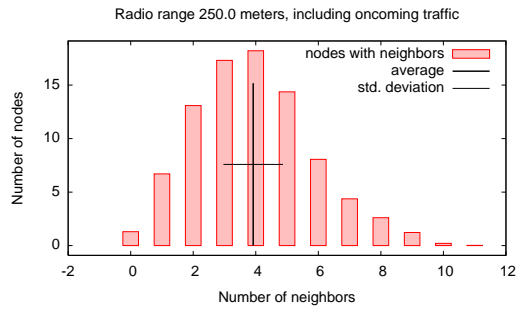
A.4.1. Trajectory plot



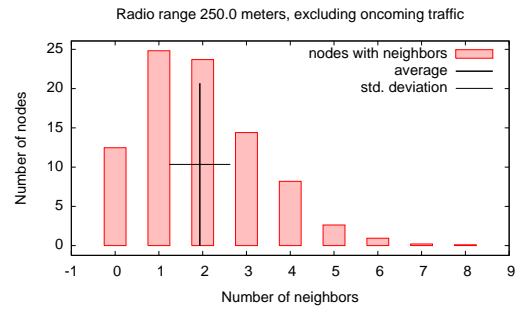
A.4.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	39.01
Number of nodes	108
Number of nodes (up)	55
Number of nodes (down)	53
Average node density [N/km]	8.05
Nodes per km and lane (up) [$N/(km \cdot lane)$]	2
Nodes per km and lane (down) [$N/(km \cdot lane)$]	2
Average number of active nodes	91.53
Average number of active nodes (up)	47.43
Average number of active nodes (down)	44.09
Number of lanes (up)	2
Length of valid area [m]	11368.10
Valid area start [m]	2677.20
Valid area end [m]	14045.30
Maximum CTR (both dirs) [m]	932.00

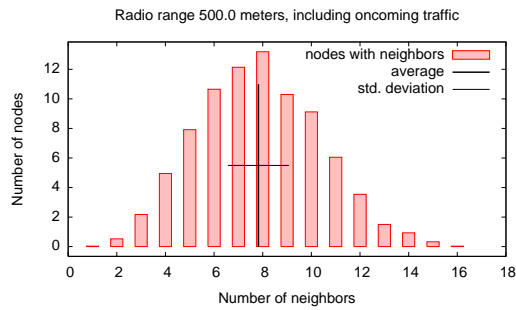
A.4.3. Neighbor histogram



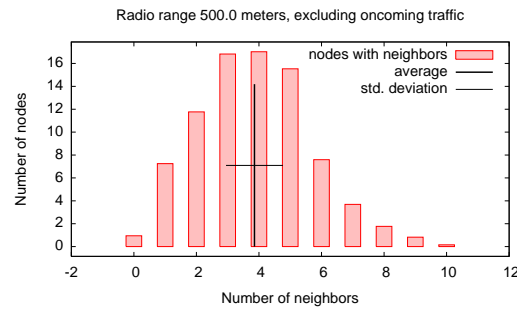
Average:	3.92
Variance:	3.63
Standard deviation:	1.90



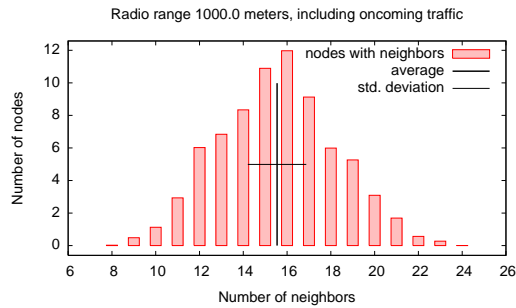
Average:	1.94
Variance:	1.94
Standard deviation:	1.39



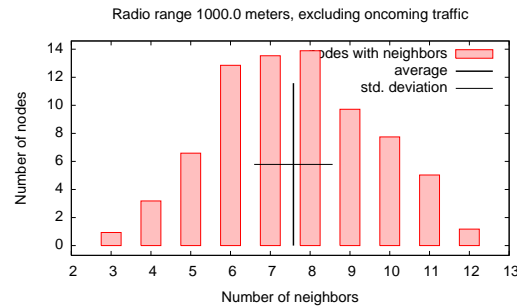
Average:	7.82
Variance:	6.29
Standard deviation:	2.51



Average:	3.86
Variance:	3.31
Standard deviation:	1.82



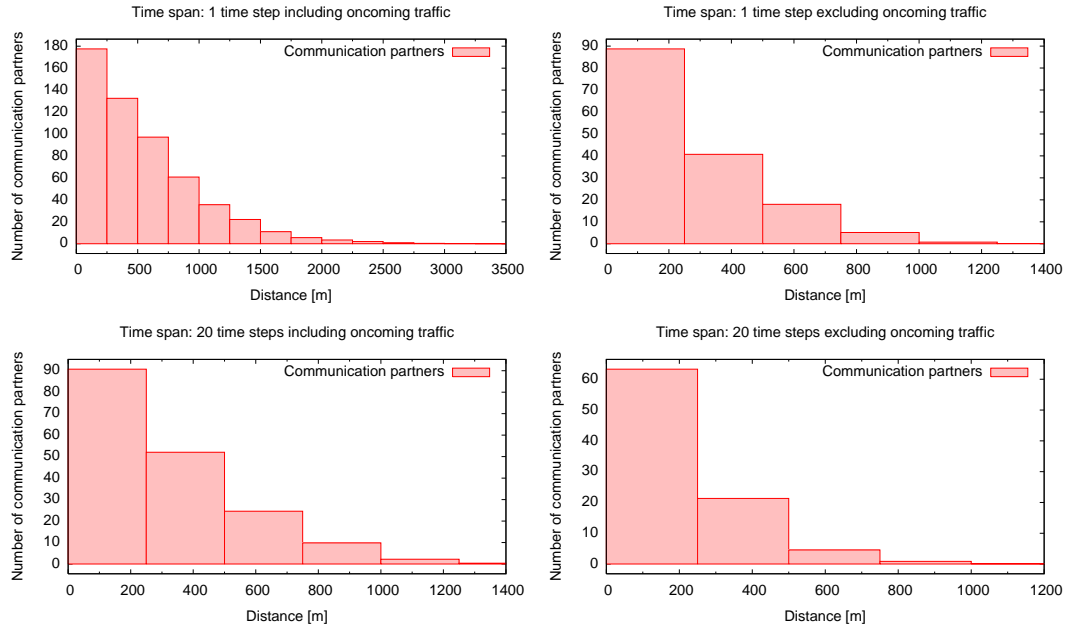
Average:	15.54
Variance:	7.13
Standard deviation:	2.67



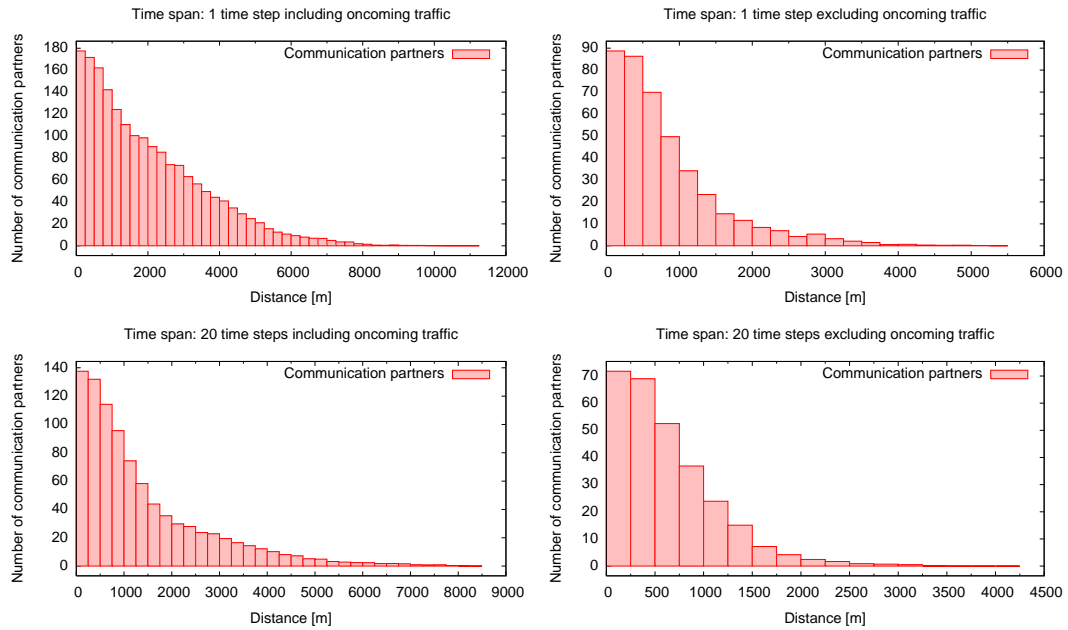
Average:	7.58
Variance:	3.89
Standard deviation:	1.97

A.4.4. Communication partner histogram

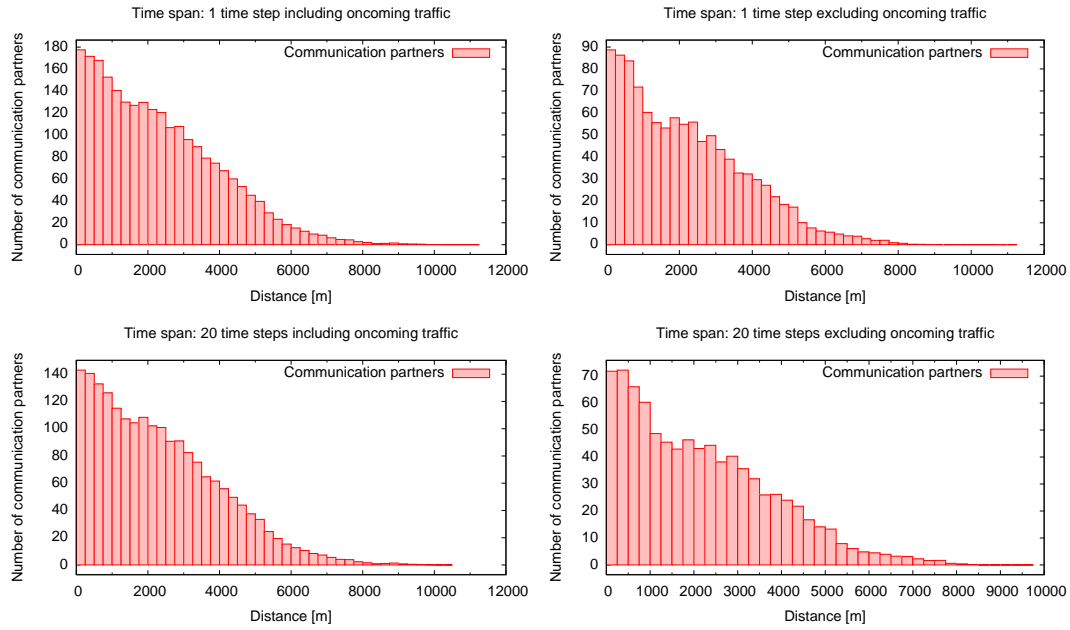
Radio range: 250.0 meters, bin size: 250.0 meters



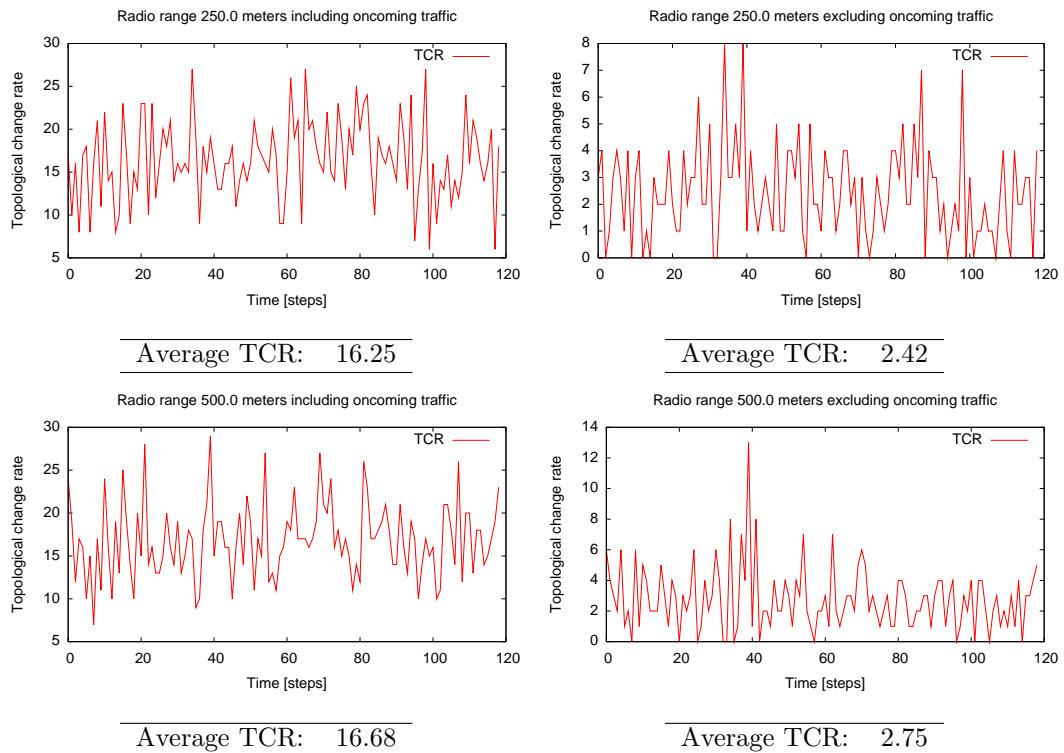
Radio range: 500.0 meters, bin size: 250.0 meters

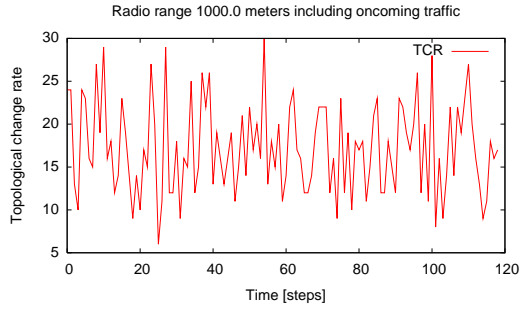


Radio range: 1000.0 meters, bin size: 250.0 meters

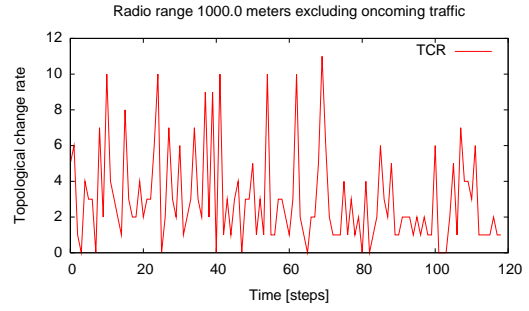


A.4.5. Topological Change Rate (TCR)



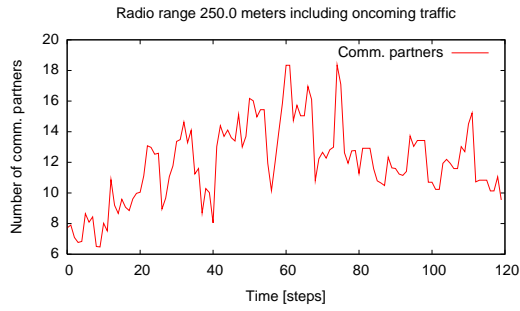


Average TCR: 17.05

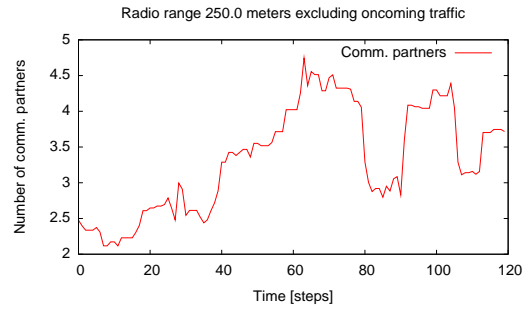


Average TCR: 2.95

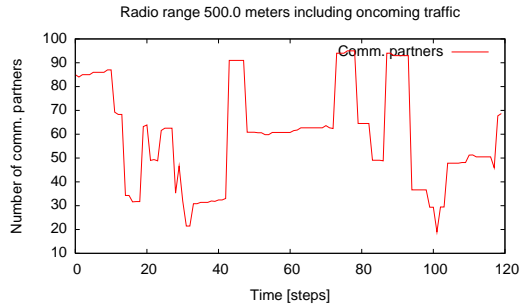
A.4.6. Total number of communication partners



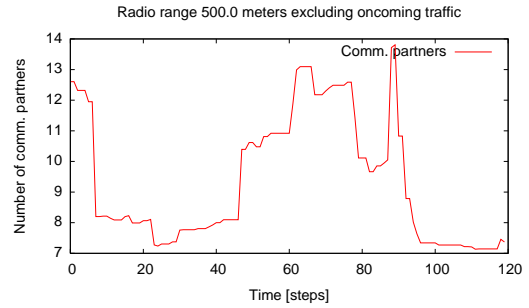
Avg. comm. partners: 11.95
Avg. active nodes: 91.53



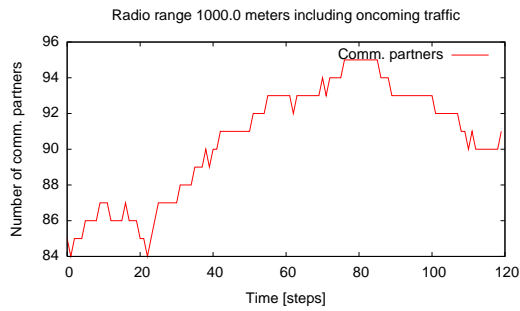
Avg. comm. partners: 3.33
Avg. active nodes: 91.53



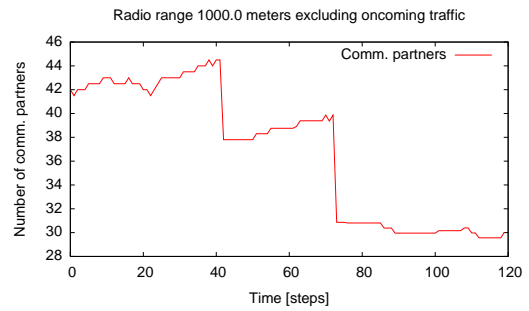
Avg. comm. partners: 59.35
Avg. active nodes: 91.53



Avg. comm. partners: 9.36
Avg. active nodes: 91.53

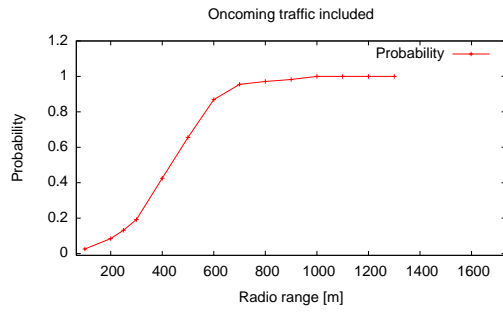


Avg. comm. partners: 90.53
Avg. active nodes: 91.53

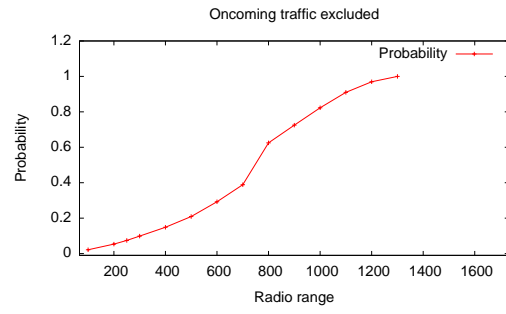


Avg. comm. partners: 36.83
Avg. active nodes: 91.53

A.4.7. Probability of being able to communicate with an arbitrary node



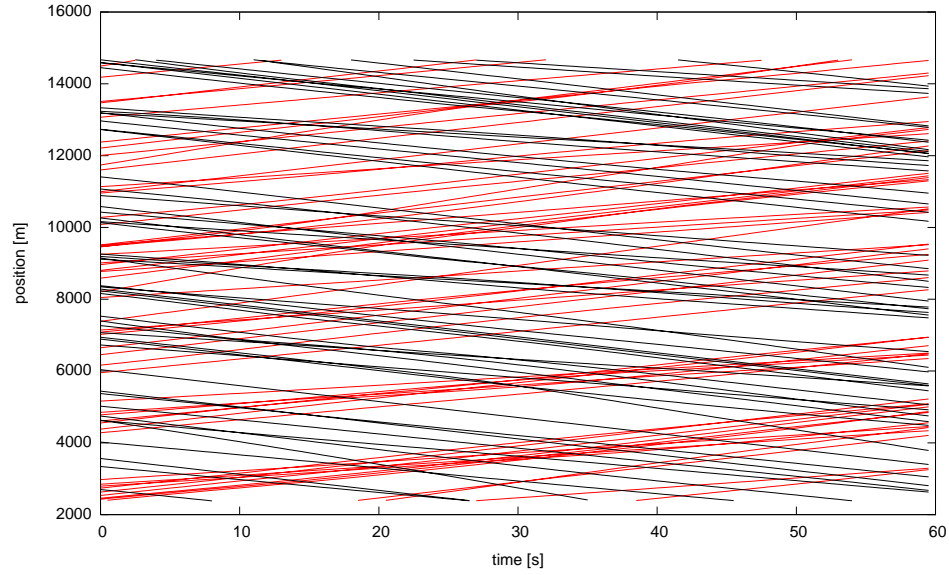
100.0 m:	0.03
200.0 m:	0.08
250.0 m:	0.13
300.0 m:	0.19
400.0 m:	0.43
500.0 m:	0.66
600.0 m:	0.87
700.0 m:	0.96
800.0 m:	0.97
900.0 m:	0.98
1000.0 m:	1.00
1100.0 m:	1.00
1200.0 m:	1.00
1300.0 m:	1.00



100.0 m:	0.02
200.0 m:	0.05
250.0 m:	0.07
300.0 m:	0.10
400.0 m:	0.15
500.0 m:	0.21
600.0 m:	0.29
700.0 m:	0.39
800.0 m:	0.62
900.0 m:	0.73
1000.0 m:	0.82
1100.0 m:	0.91
1200.0 m:	0.97
1300.0 m:	1.00

A.5. Scenario “mvmnt-hwgui-02lpd-02npkm-05.txt”

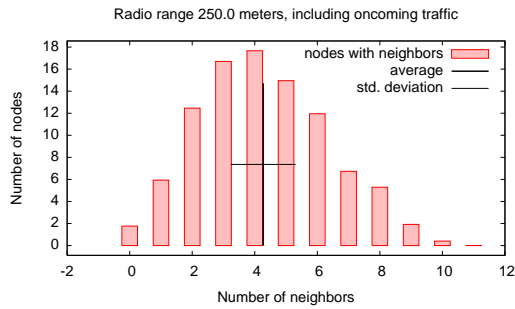
A.5.1. Trajectory plot



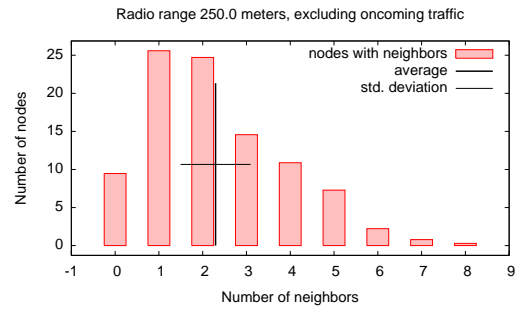
A.5.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	38.49
Number of nodes	111
Number of nodes (up)	57
Number of nodes (down)	54
Average node density [N/km]	8.07
Nodes per km and lane (up) [$N/(km \cdot lane)$]	2
Nodes per km and lane (down) [$N/(km \cdot lane)$]	2
Average number of active nodes	99.15
Average number of active nodes (up)	50.14
Average number of active nodes (down)	49.01
Number of lanes (up)	2
Length of valid area [m]	12288.80
Valid area start [m]	2382.50
Valid area end [m]	14671.30
Maximum CTR (both dirs) [m]	929.50

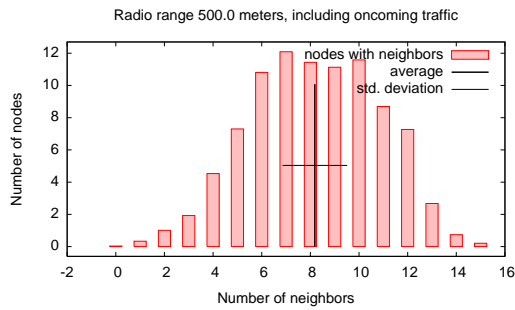
A.5.3. Neighbor histogram



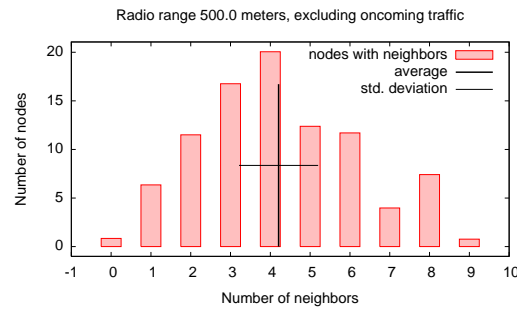
Average:	4.27
Variance:	4.31
Standard deviation:	2.08



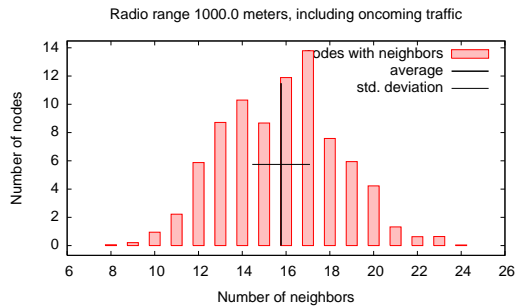
Average:	2.29
Variance:	2.55
Standard deviation:	1.60



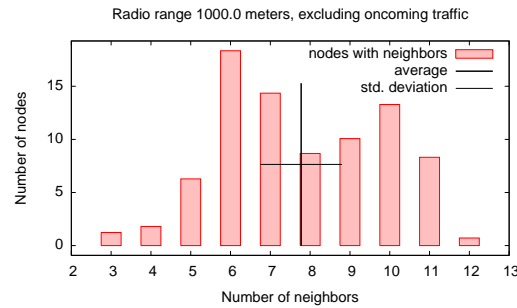
Average:	8.18
Variance:	7.07
Standard deviation:	2.66



Average:	4.21
Variance:	3.95
Standard deviation:	1.99



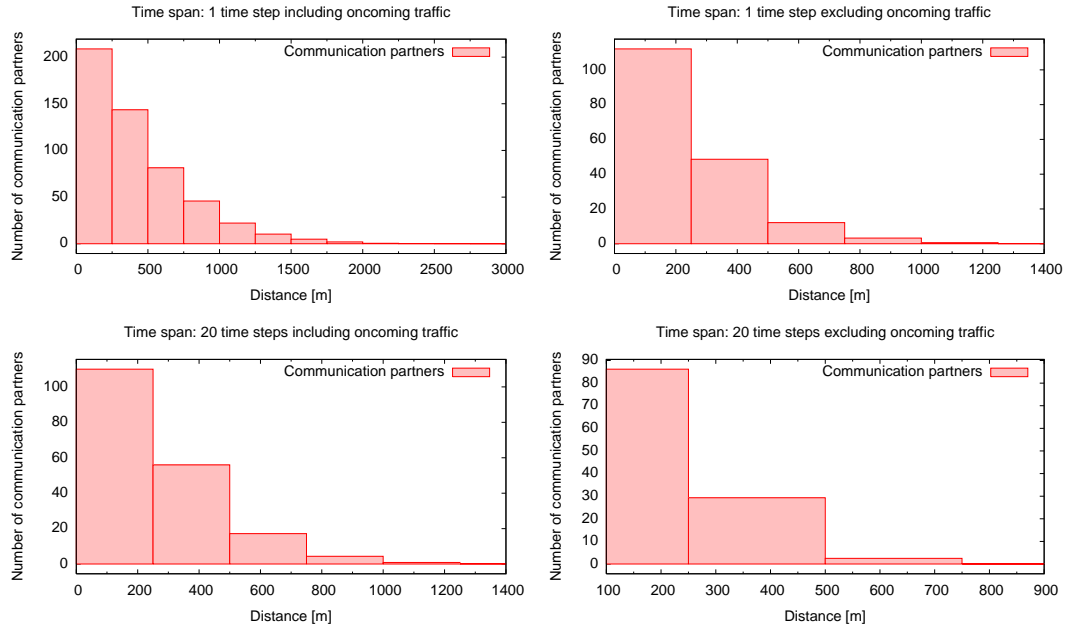
Average:	15.77
Variance:	6.95
Standard deviation:	2.64



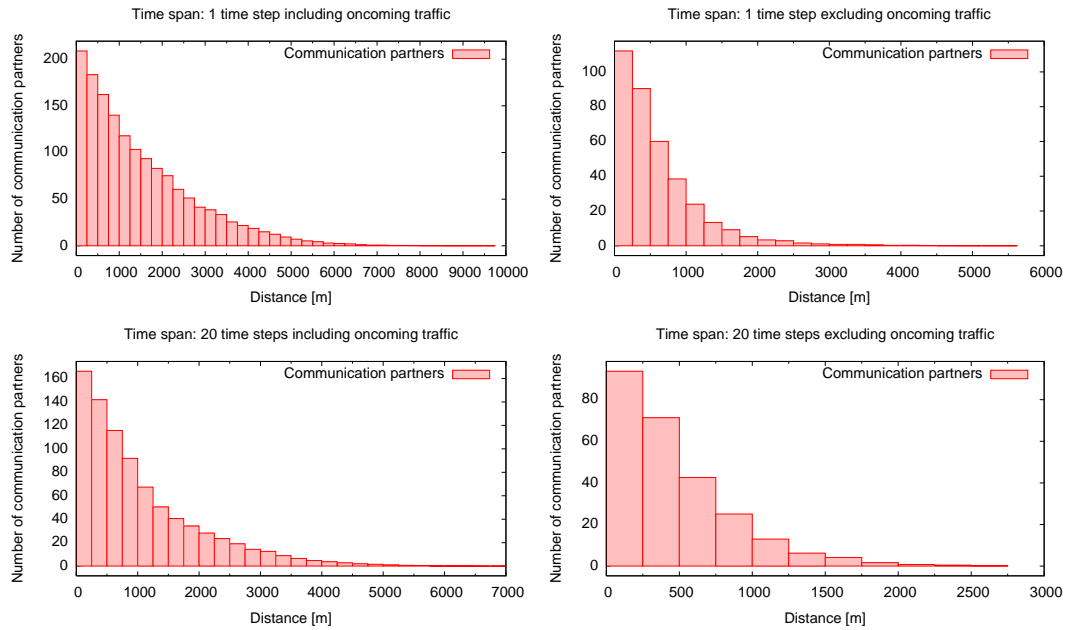
Average:	7.77
Variance:	4.20
Standard deviation:	2.05

A.5.4. Communication partner histogram

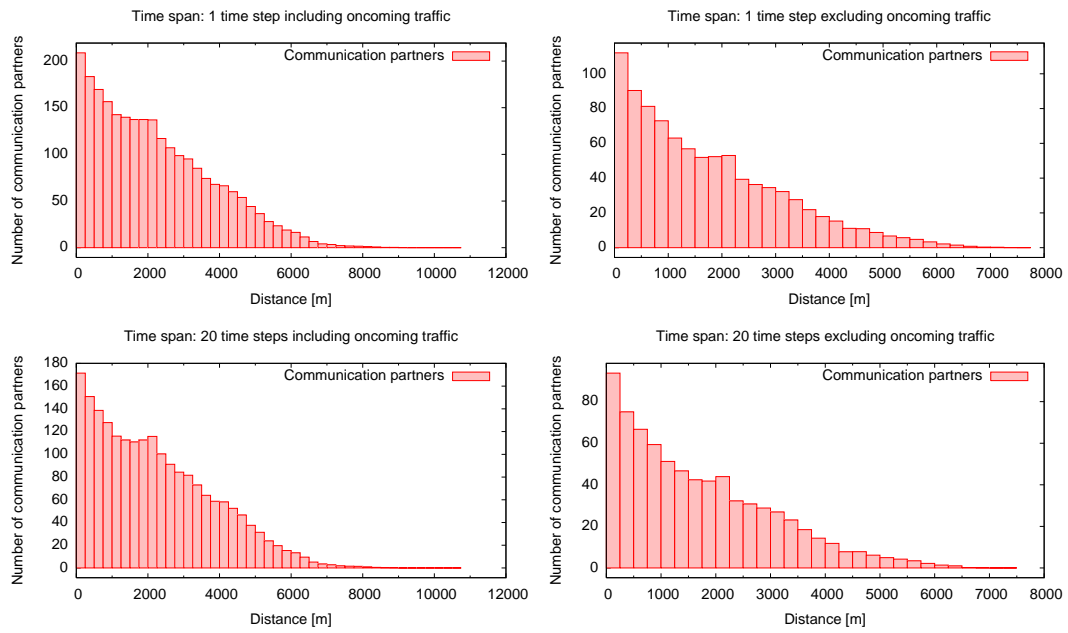
Radio range: 250.0 meters, bin size: 250.0 meters



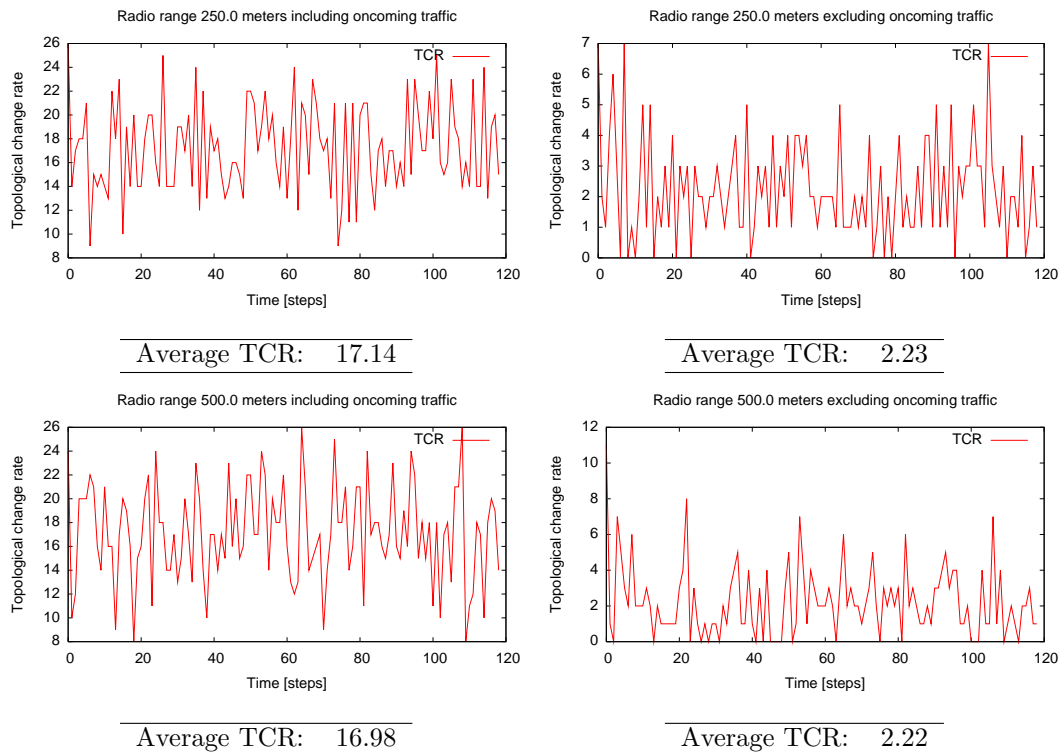
Radio range: 500.0 meters, bin size: 250.0 meters

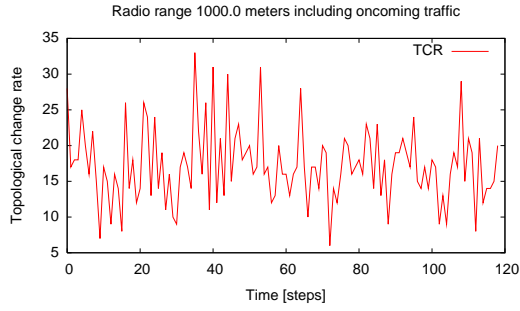


Radio range: 1000.0 meters, bin size: 250.0 meters

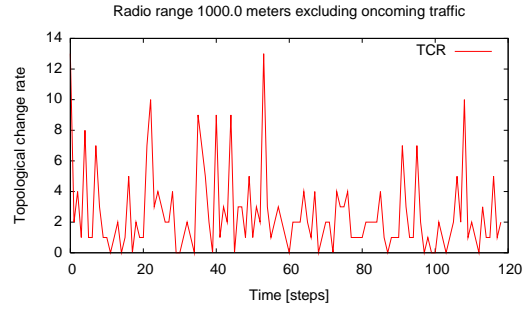


A.5.5. Topological Change Rate (TCR)



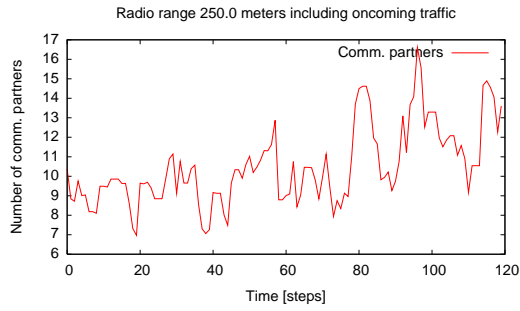


Average TCR: 17.11

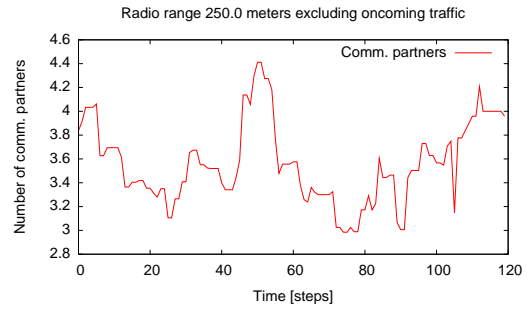


Average TCR: 2.52

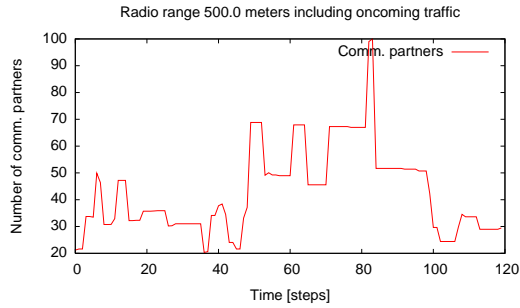
A.5.6. Total number of communication partners



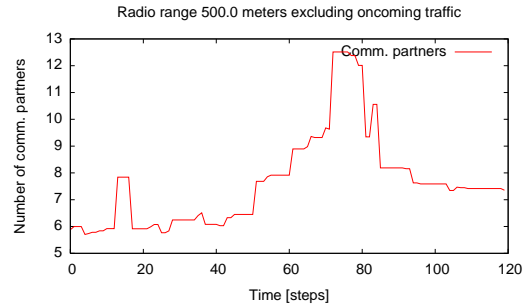
Avg. comm. partners: 10.49
Avg. active nodes: 99.15



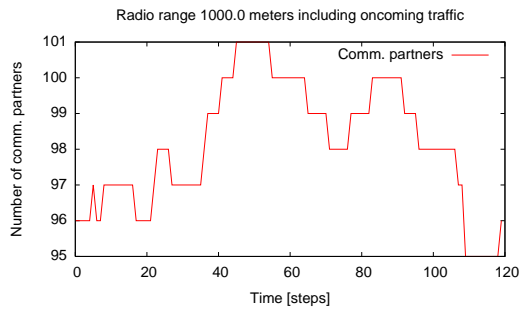
Avg. comm. partners: 3.56
Avg. active nodes: 99.15



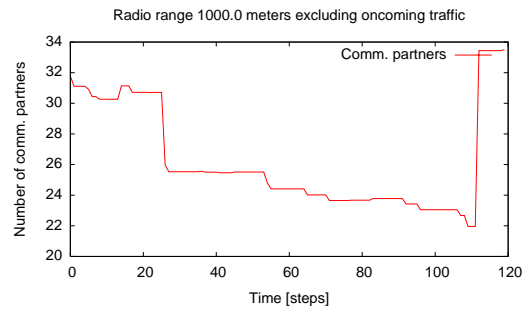
Avg. comm. partners: 42.90
Avg. active nodes: 99.15



Avg. comm. partners: 7.63
Avg. active nodes: 99.15

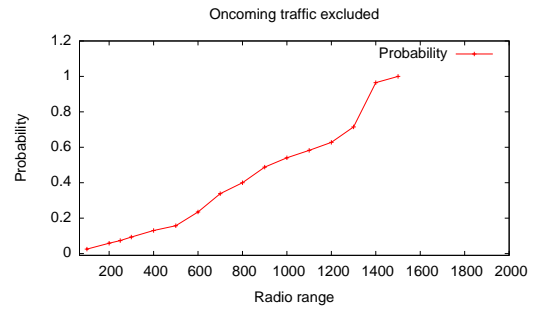
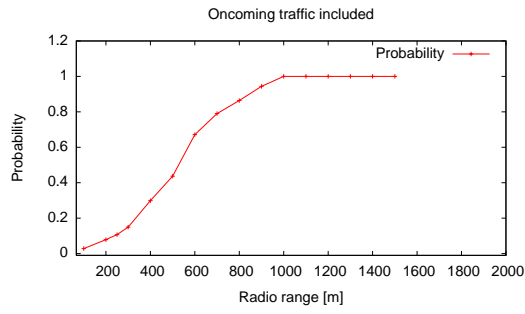


Avg. comm. partners: 98.15
Avg. active nodes: 99.15



Avg. comm. partners: 26.26
Avg. active nodes: 99.15

A.5.7. Probability of being able to communicate with an arbitrary node

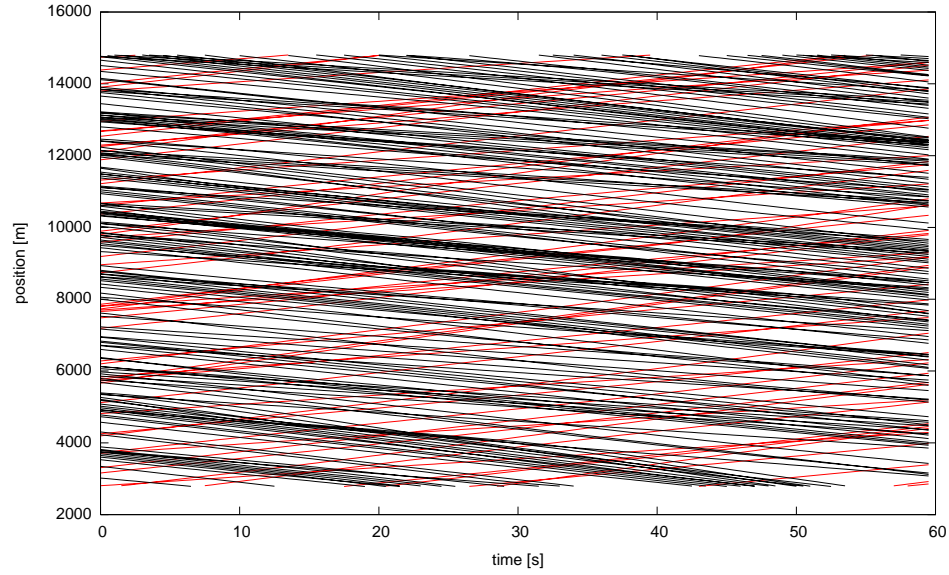


100.0 m:	0.03
200.0 m:	0.08
250.0 m:	0.11
300.0 m:	0.15
400.0 m:	0.30
500.0 m:	0.44
600.0 m:	0.67
700.0 m:	0.79
800.0 m:	0.86
900.0 m:	0.94
1000.0 m:	1.00
1100.0 m:	1.00
1200.0 m:	1.00
1300.0 m:	1.00
1400.0 m:	1.00
1500.0 m:	1.00

100.0 m:	0.03
200.0 m:	0.06
250.0 m:	0.07
300.0 m:	0.09
400.0 m:	0.13
500.0 m:	0.16
600.0 m:	0.23
700.0 m:	0.34
800.0 m:	0.40
900.0 m:	0.49
1000.0 m:	0.54
1100.0 m:	0.58
1200.0 m:	0.63
1300.0 m:	0.71
1400.0 m:	0.96
1500.0 m:	1.00

A.6. Scenario “mvmnt-hwgui-02lpd-02-06npkm-01.txt”

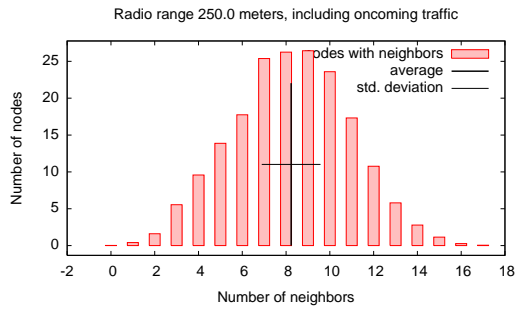
A.6.1. Trajectory plot



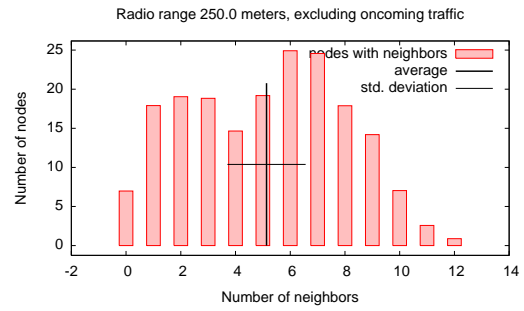
A.6.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	37.49
Number of nodes	236
Number of nodes (up)	59
Number of nodes (down)	177
Average node density [N/km]	16.39
Nodes per km and lane (up) [$N/(km \cdot lane)$]	2
Nodes per km and lane (down) [$N/(km \cdot lane)$]	6
Average number of active nodes	197.06
Average number of active nodes (up)	49.05
Average number of active nodes (down)	148.01
Number of lanes (up)	2
Length of valid area [m]	12022.00
Valid area start [m]	2783.00
Valid area end [m]	14805.00
Maximum CTR (both dirs) [m]	469.20

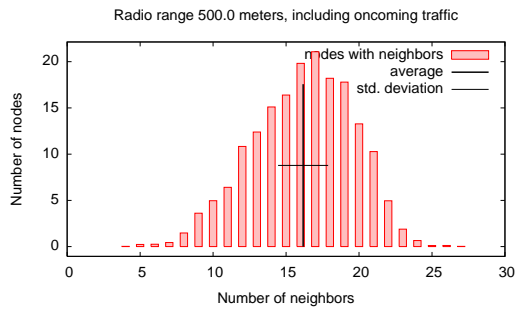
A.6.3. Neighbor histogram



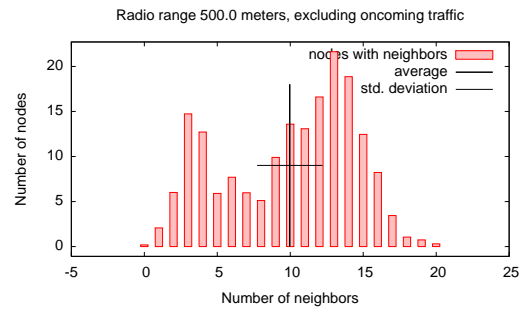
Average:	8.23
Variance:	7.19
Standard deviation:	2.68



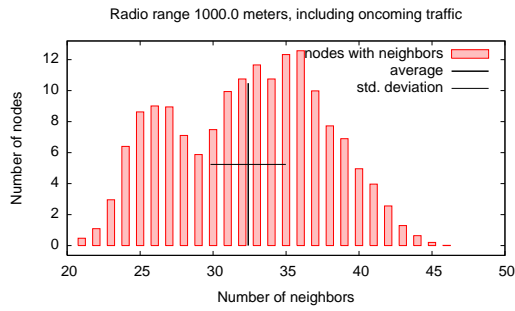
Average:	5.13
Variance:	8.17
Standard deviation:	2.86



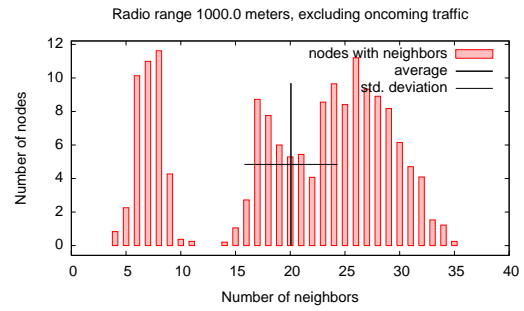
Average:	16.17
Variance:	11.77
Standard deviation:	3.43



Average:	9.97
Variance:	20.06
Standard deviation:	4.48



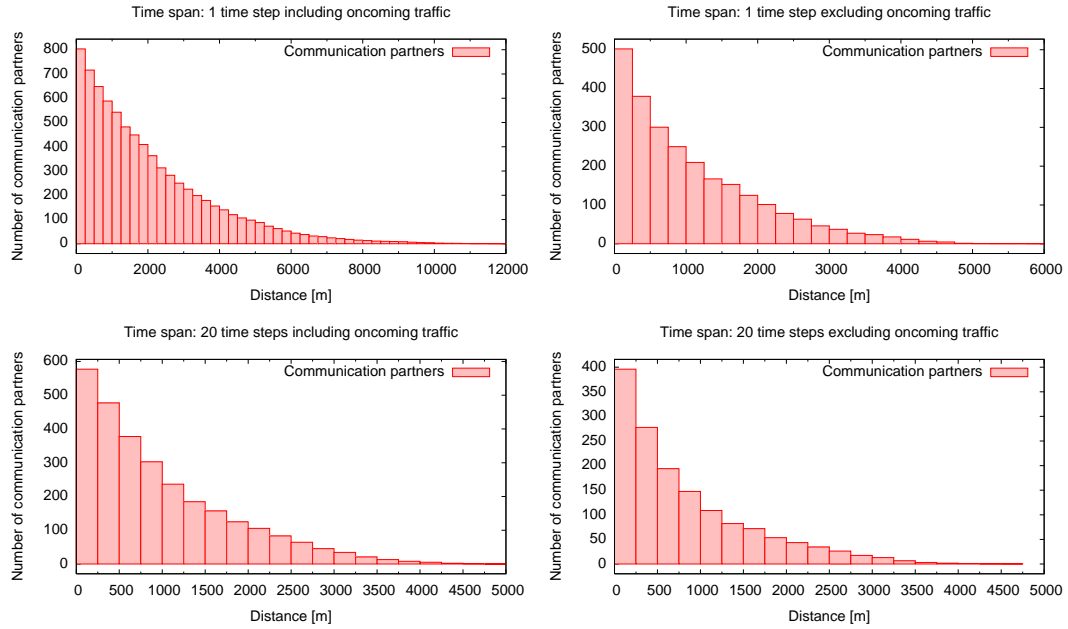
Average:	32.41
Variance:	26.67
Standard deviation:	5.16



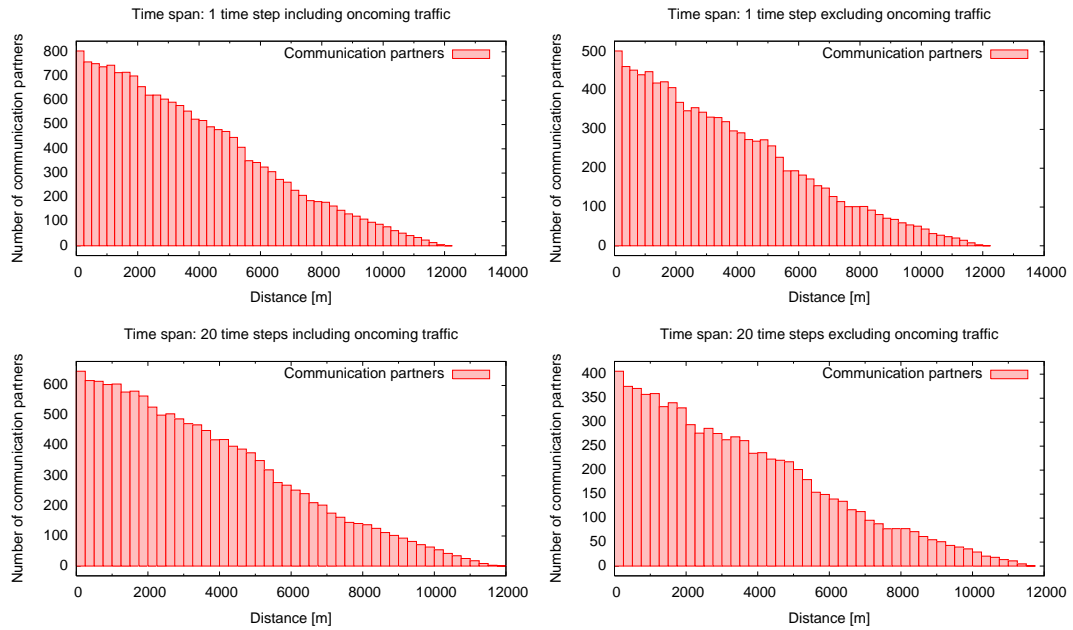
Average:	20.07
Variance:	72.42
Standard deviation:	8.51

A.6.4. Communication partner histogram

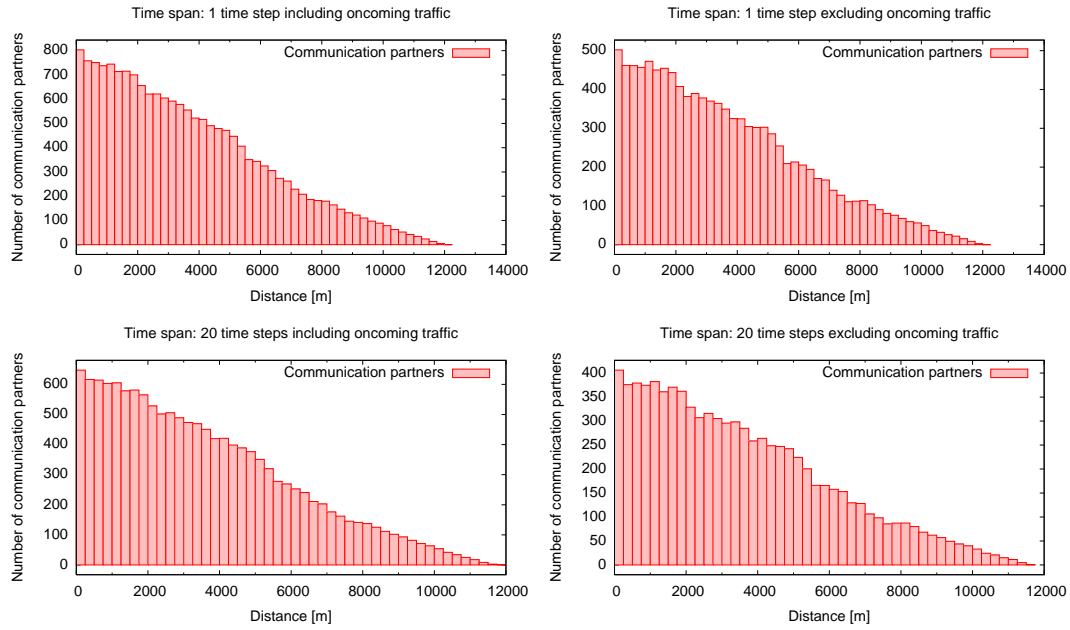
Radio range: 250.0 meters, bin size: 250.0 meters



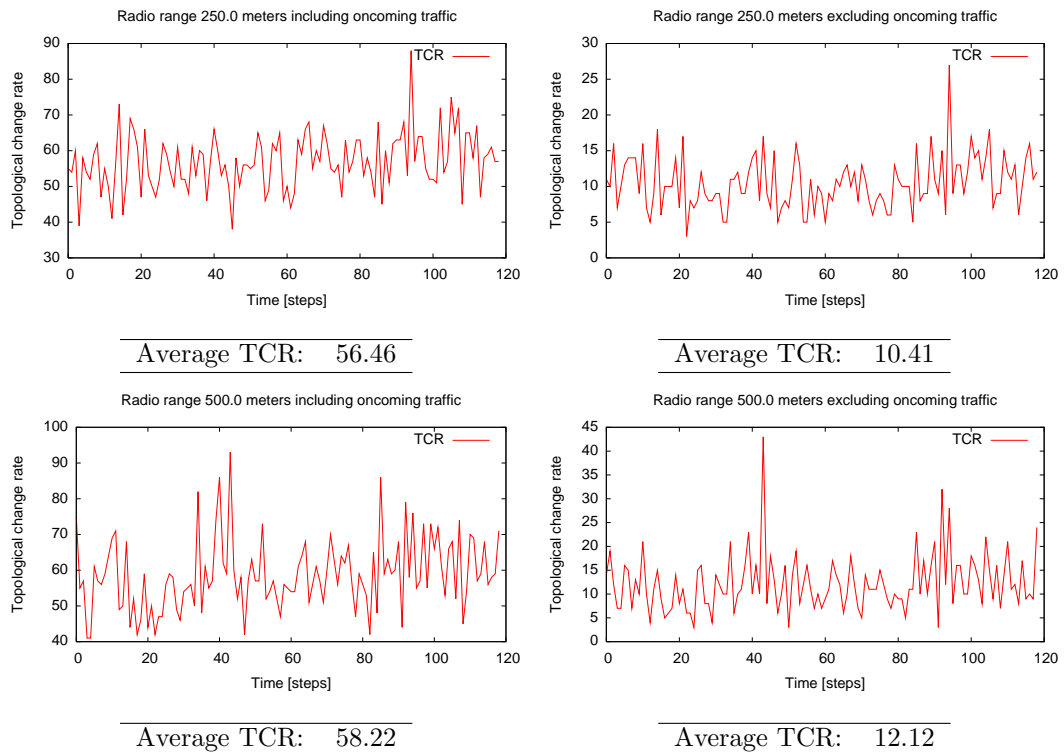
Radio range: 500.0 meters, bin size: 250.0 meters

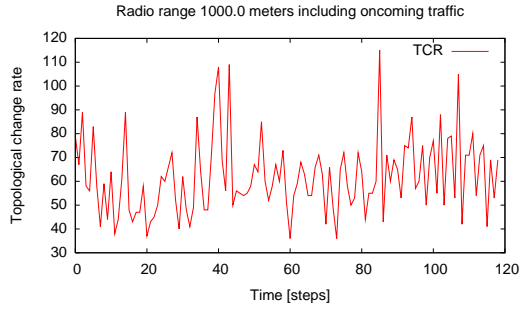


Radio range: 1000.0 meters, bin size: 250.0 meters

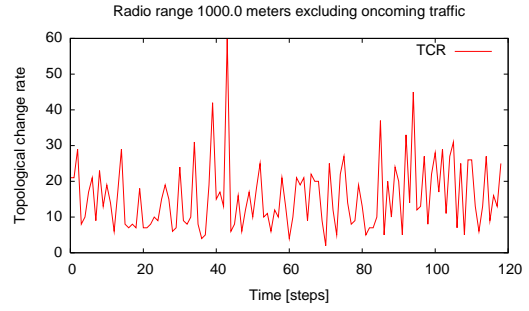


A.6.5. Topological Change Rate (TCR)



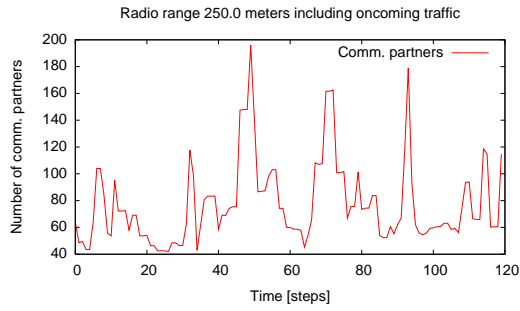


Average TCR: 61.30

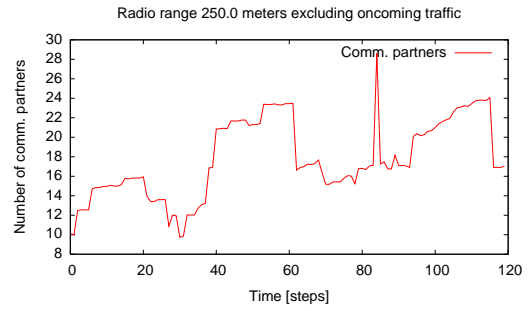


Average TCR: 15.53

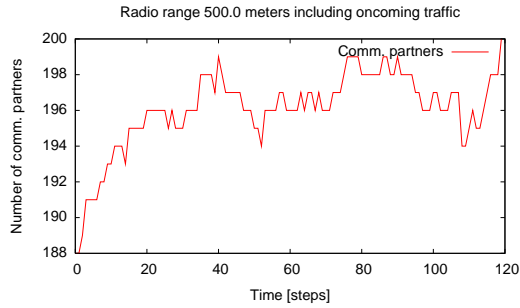
A.6.6. Total number of communication partners



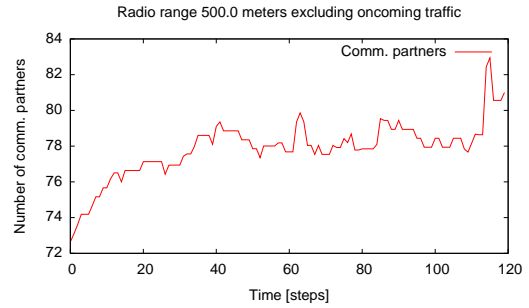
Avg. comm. partners: 77.51
Avg. active nodes: 197.06



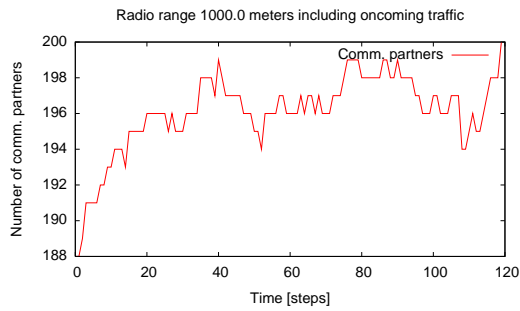
Avg. comm. partners: 17.76
Avg. active nodes: 197.06



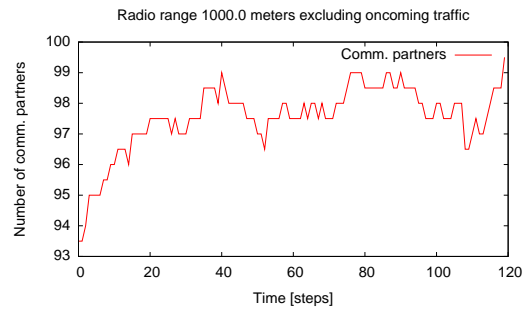
Avg. comm. partners: 196.06
Avg. active nodes: 197.06



Avg. comm. partners: 77.85
Avg. active nodes: 197.06

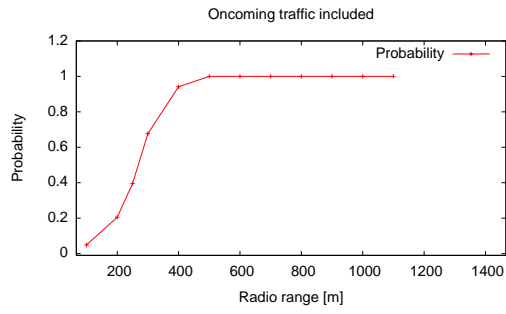


Avg. comm. partners: 196.06
Avg. active nodes: 197.06

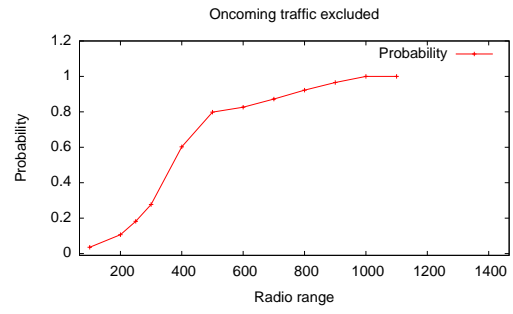


Avg. comm. partners: 97.53
Avg. active nodes: 197.06

A.6.7. Probability of being able to communicate with an arbitrary node



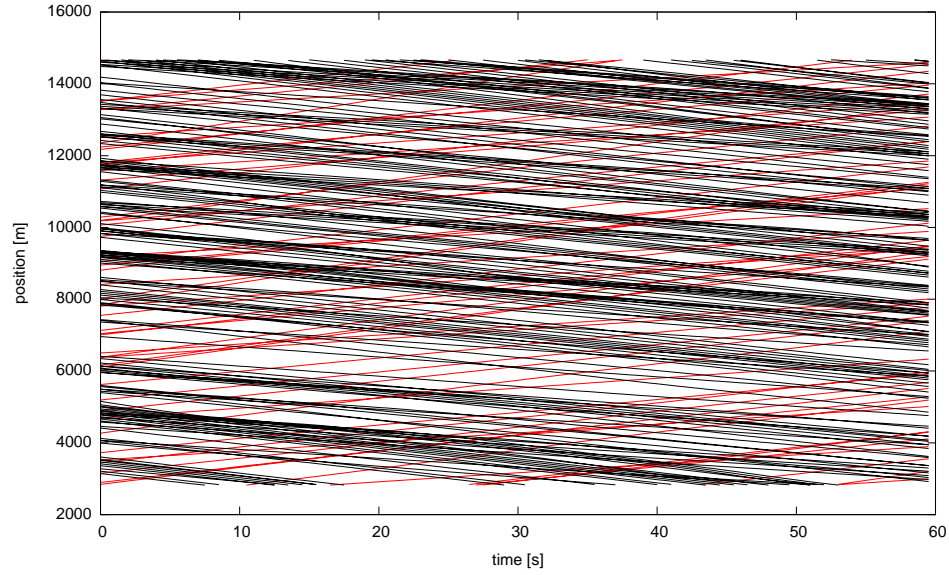
100.0 m:	0.05
200.0 m:	0.21
250.0 m:	0.40
300.0 m:	0.68
400.0 m:	0.94
500.0 m:	1.00
600.0 m:	1.00
700.0 m:	1.00
800.0 m:	1.00
900.0 m:	1.00
1000.0 m:	1.00
1100.0 m:	1.00



100.0 m:	0.04
200.0 m:	0.11
250.0 m:	0.18
300.0 m:	0.28
400.0 m:	0.60
500.0 m:	0.80
600.0 m:	0.83
700.0 m:	0.87
800.0 m:	0.92
900.0 m:	0.97
1000.0 m:	1.00
1100.0 m:	1.00

A.7. Scenario “mvmnt-hwgui-02lpd-02-06npkm-02.txt”

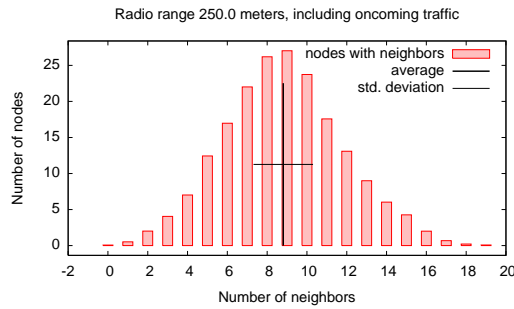
A.7.1. Trajectory plot



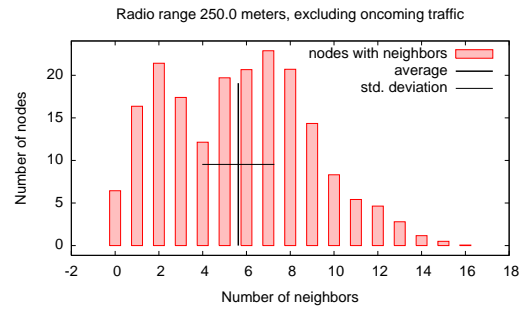
A.7.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	36.49
Number of nodes	240
Number of nodes (up)	57
Number of nodes (down)	183
Average node density [N/km]	17.21
Nodes per km and lane (up) [$N/(km \cdot lane)$]	2
Nodes per km and lane (down) [$N/(km \cdot lane)$]	6
Average number of active nodes	204.01
Average number of active nodes (up)	48.93
Average number of active nodes (down)	155.07
Number of lanes (up)	2
Length of valid area [m]	11850.70
Valid area start [m]	2821.10
Valid area end [m]	14671.80
Maximum CTR (both dirs) [m]	537.10

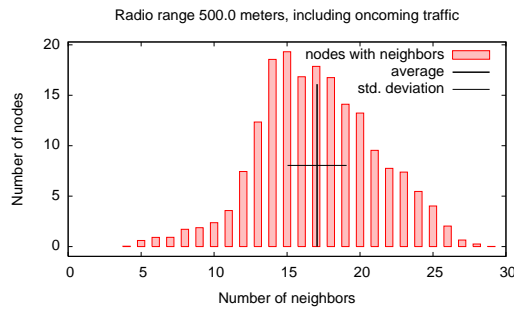
A.7.3. Neighbor histogram



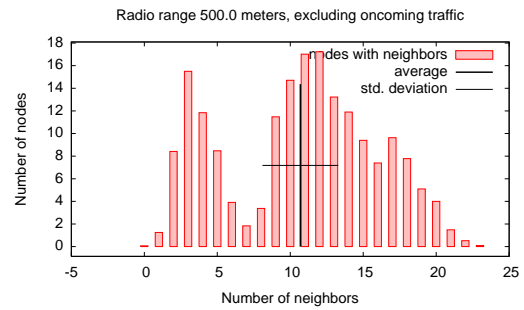
Average:	8.81
Variance:	8.96
Standard deviation:	2.99



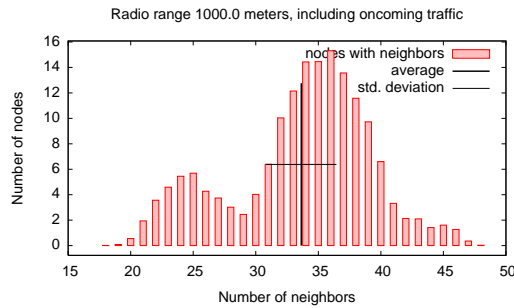
Average:	5.63
Variance:	10.83
Standard deviation:	3.29



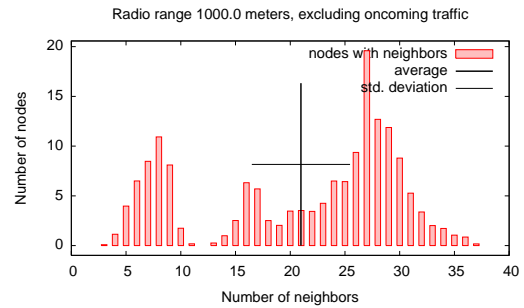
Average:	17.06
Variance:	16.38
Standard deviation:	4.05



Average:	10.69
Variance:	26.98
Standard deviation:	5.19



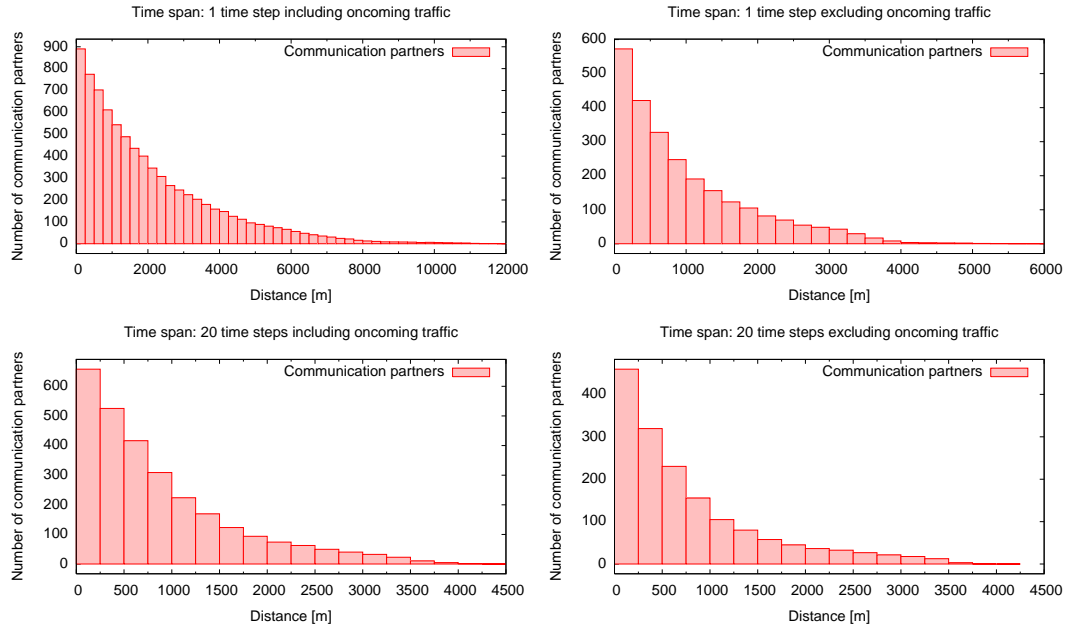
Average:	33.64
Variance:	31.55
Standard deviation:	5.62



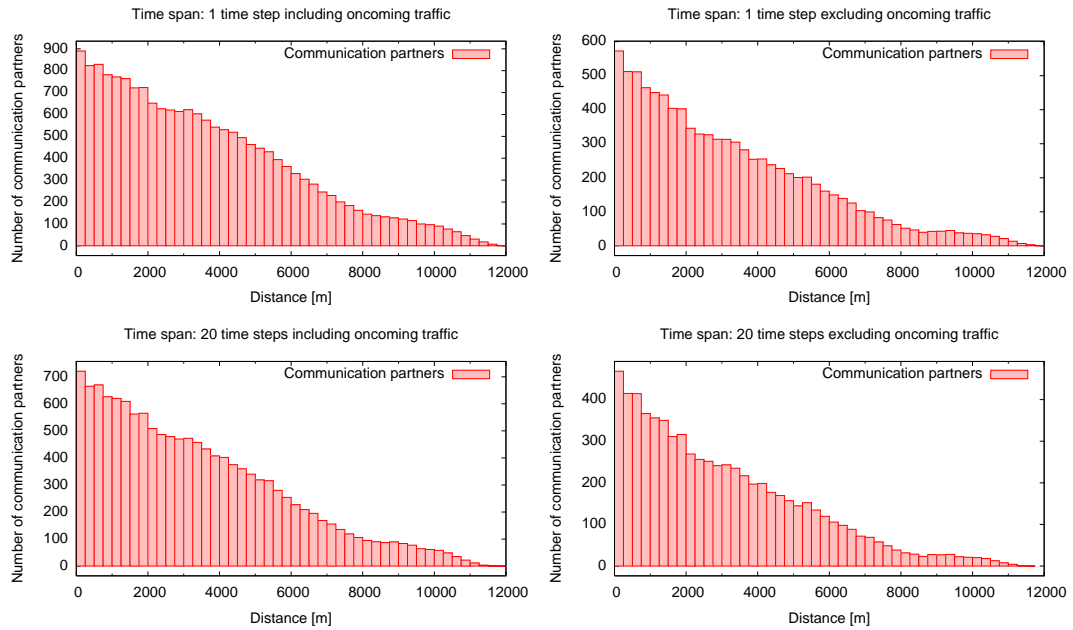
Average:	20.98
Variance:	80.54
Standard deviation:	8.97

A.7.4. Communication partner histogram

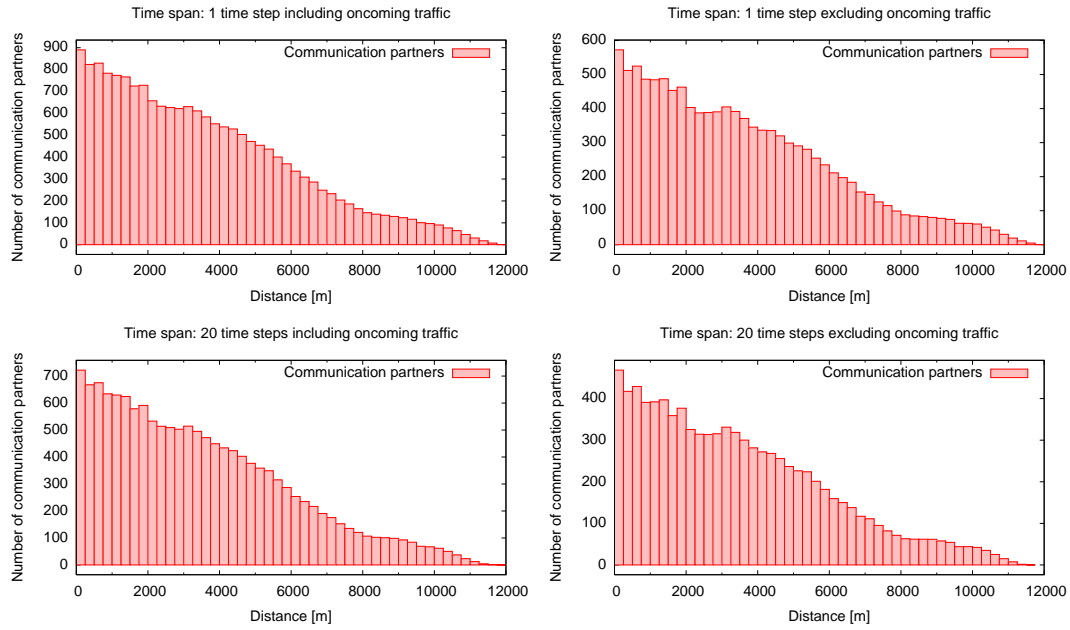
Radio range: 250.0 meters, bin size: 250.0 meters



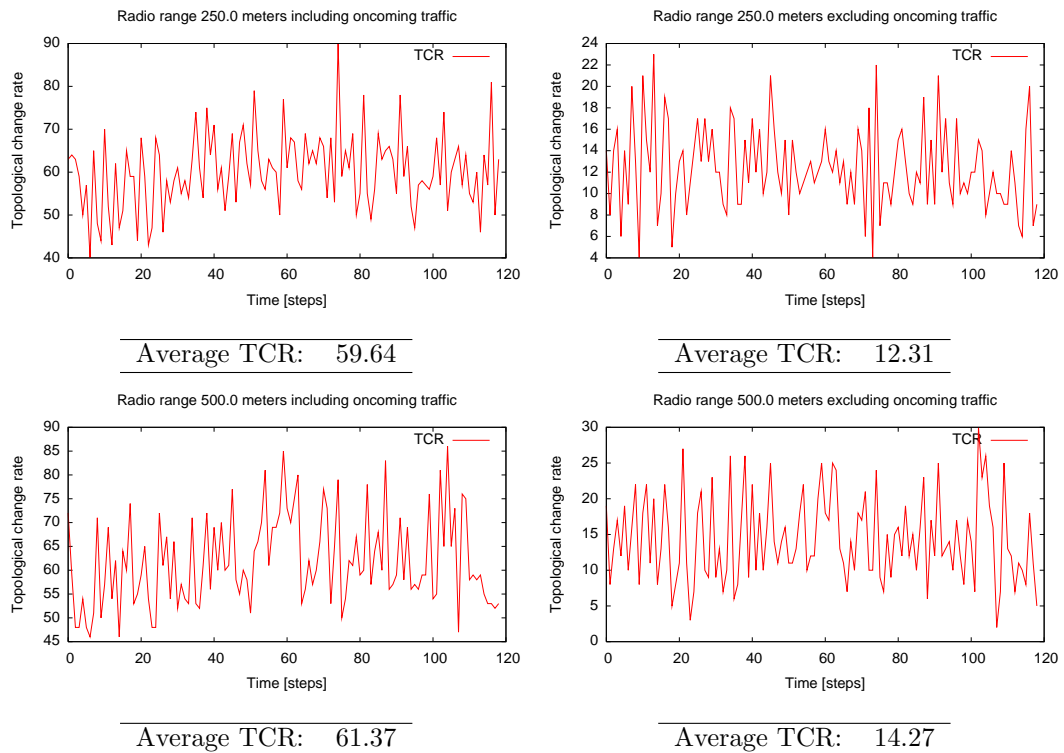
Radio range: 500.0 meters, bin size: 250.0 meters

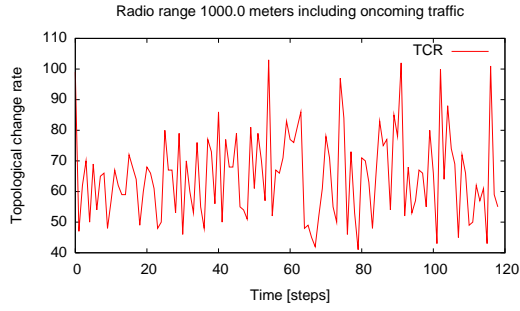


Radio range: 1000.0 meters, bin size: 250.0 meters

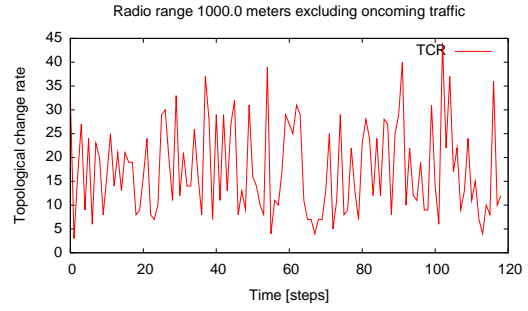


A.7.5. Topological Change Rate (TCR)



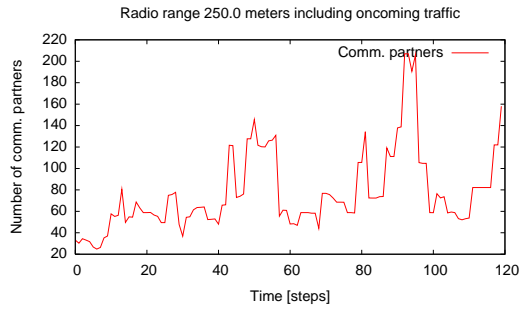


Average TCR: 64.47

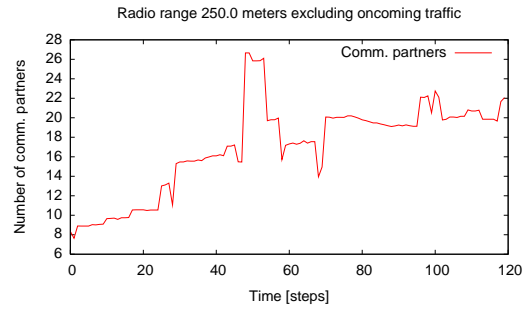


Average TCR: 17.38

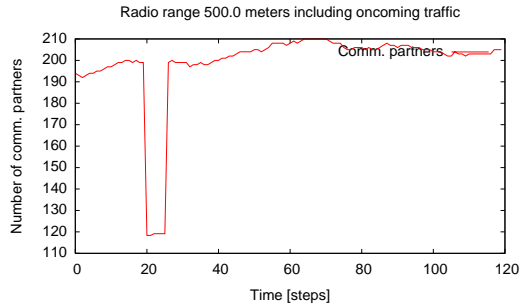
A.7.6. Total number of communication partners



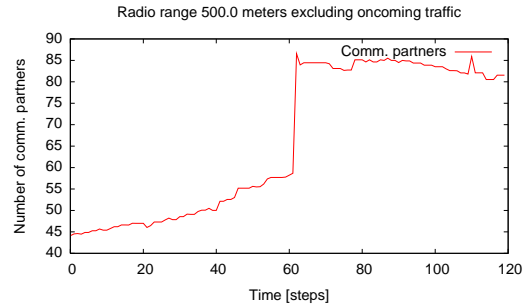
Avg. comm. partners: 77.38
Avg. active nodes: 204.01



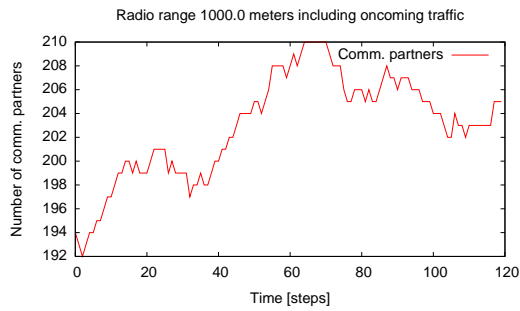
Avg. comm. partners: 16.99
Avg. active nodes: 204.01



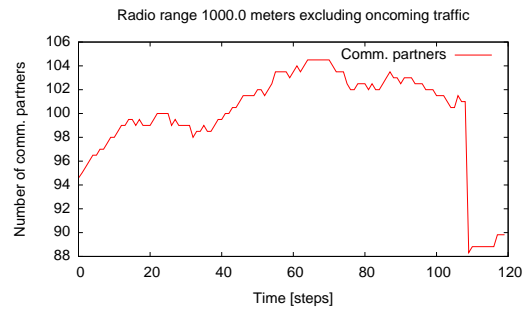
Avg. comm. partners: 198.93
Avg. active nodes: 204.01



Avg. comm. partners: 66.28
Avg. active nodes: 204.01

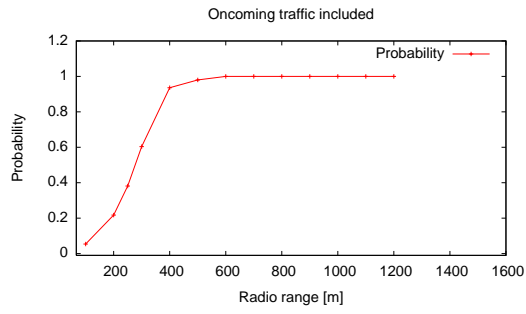


Avg. comm. partners: 203.01
Avg. active nodes: 204.01

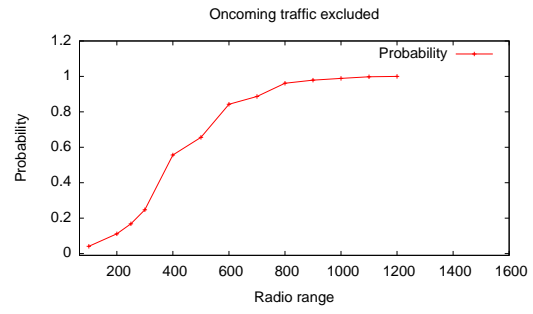


Avg. comm. partners: 99.86
Avg. active nodes: 204.01

A.7.7. Probability of being able to communicate with an arbitrary node



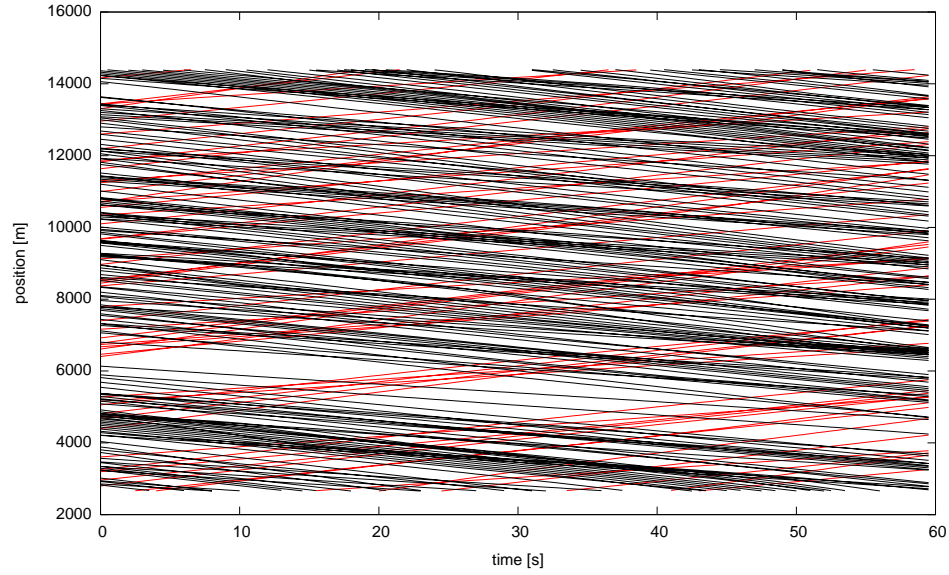
100.0 m:	0.05
200.0 m:	0.22
250.0 m:	0.38
300.0 m:	0.60
400.0 m:	0.94
500.0 m:	0.98
600.0 m:	1.00
700.0 m:	1.00
800.0 m:	1.00
900.0 m:	1.00
1000.0 m:	1.00
1100.0 m:	1.00
1200.0 m:	1.00



100.0 m:	0.04
200.0 m:	0.11
250.0 m:	0.17
300.0 m:	0.25
400.0 m:	0.56
500.0 m:	0.66
600.0 m:	0.84
700.0 m:	0.89
800.0 m:	0.96
900.0 m:	0.98
1000.0 m:	0.99
1100.0 m:	1.00
1200.0 m:	1.00

A.8. Scenario “mvmnt-hwgui-02lpd-02-06npkm-03.txt”

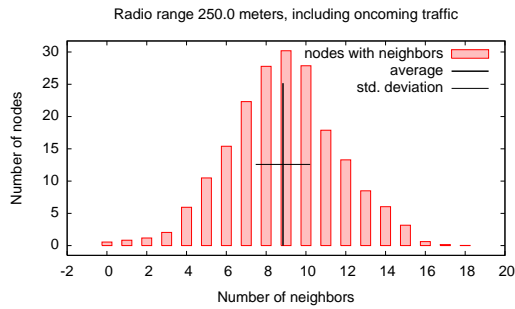
A.8.1. Trajectory plot



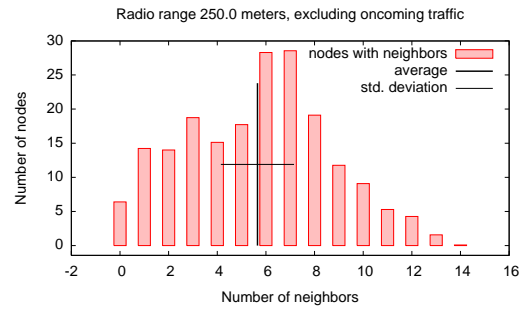
A.8.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	36.55
Number of nodes	241
Number of nodes (up)	57
Number of nodes (down)	184
Average node density [N/km]	17.37
Nodes per km and lane (up) [$N/(km \cdot lane)$]	2
Nodes per km and lane (down) [$N/(km \cdot lane)$]	6
Average number of active nodes	203.97
Average number of active nodes (up)	48.78
Average number of active nodes (down)	155.19
Number of lanes (up)	2
Length of valid area [m]	11741.10
Valid area start [m]	2656.50
Valid area end [m]	14397.60
Maximum CTR (both dirs) [m]	685.10

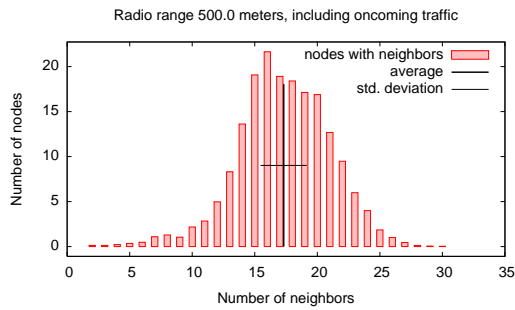
A.8.3. Neighbor histogram



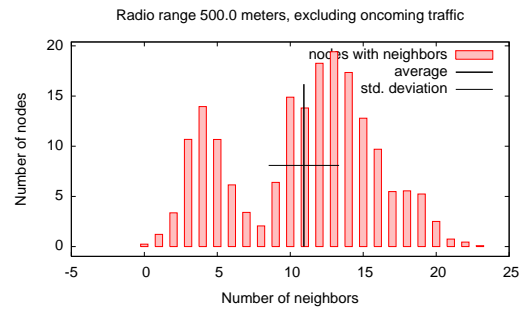
Average:	8.85
Variance:	7.51
Standard deviation:	2.74



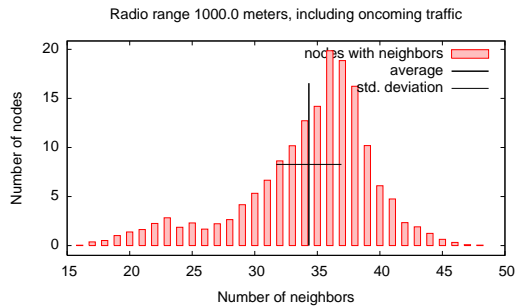
Average:	5.65
Variance:	9.05
Standard deviation:	3.01



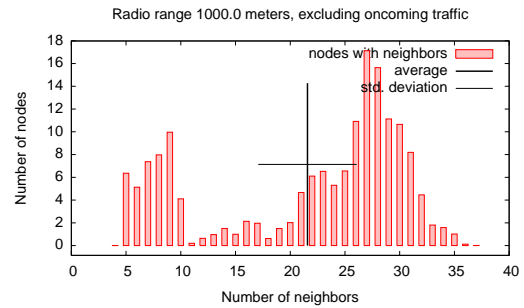
Average:	17.31
Variance:	13.67
Standard deviation:	3.70



Average:	10.94
Variance:	23.27
Standard deviation:	4.82



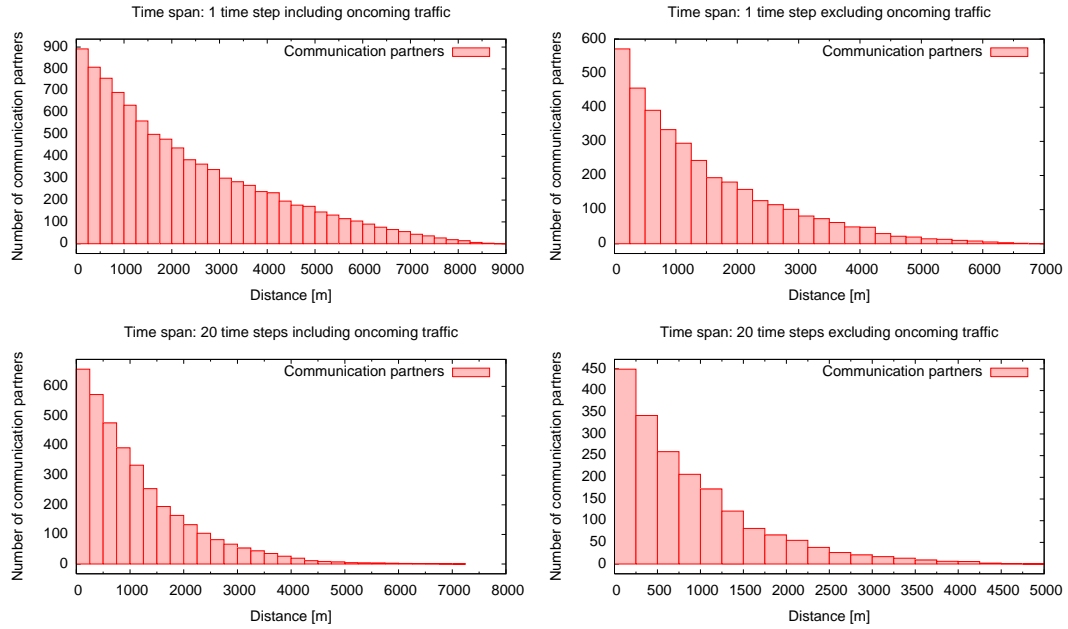
Average:	34.33
Variance:	27.07
Standard deviation:	5.20



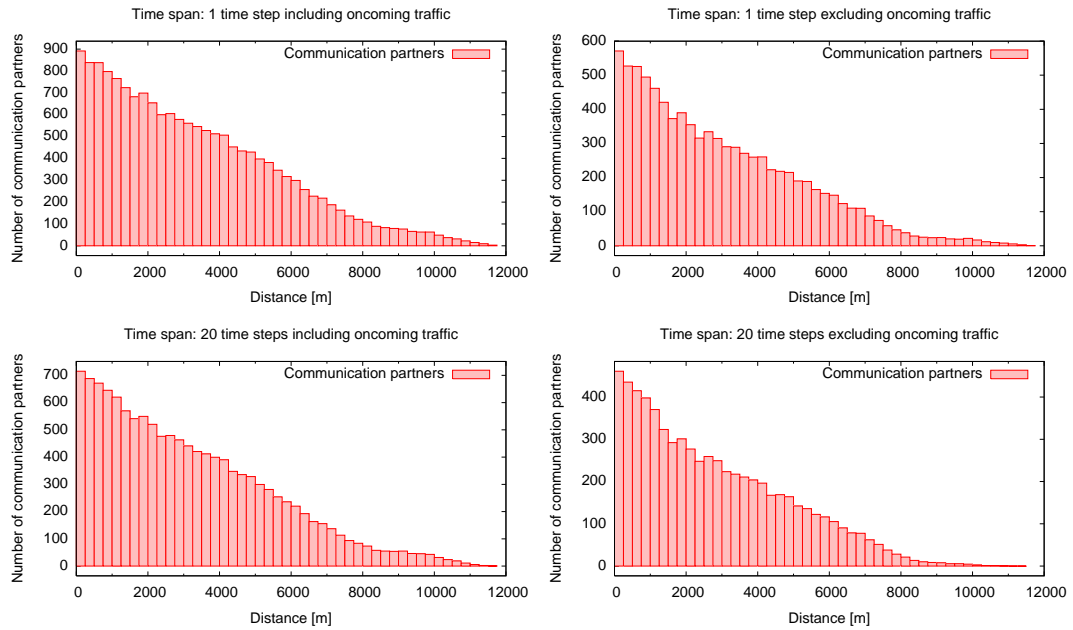
Average:	21.57
Variance:	80.66
Standard deviation:	8.98

A.8.4. Communication partner histogram

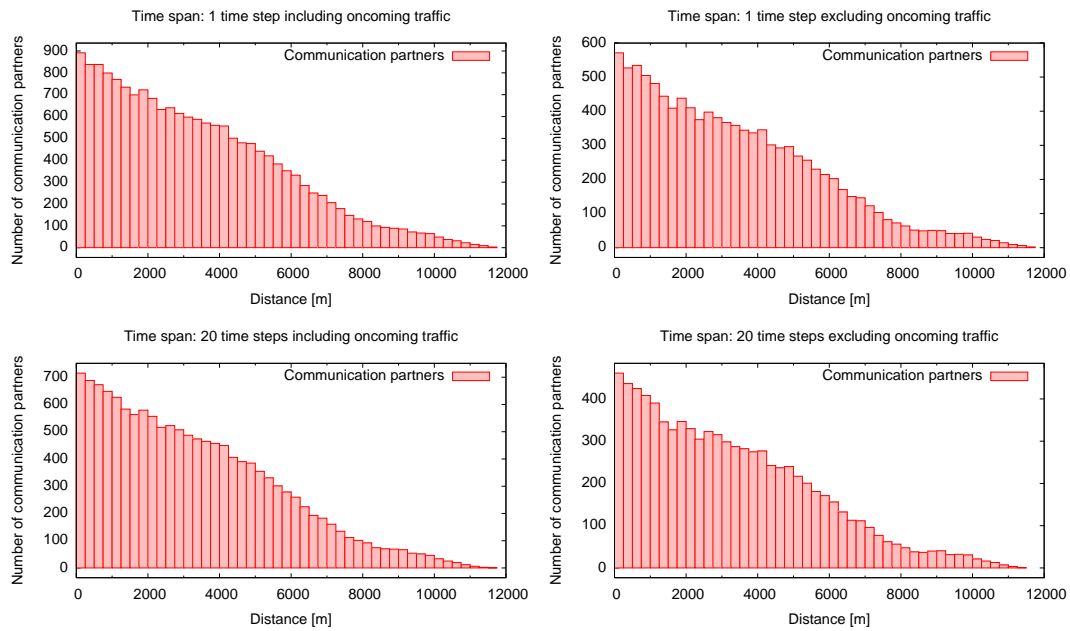
Radio range: 250.0 meters, bin size: 250.0 meters



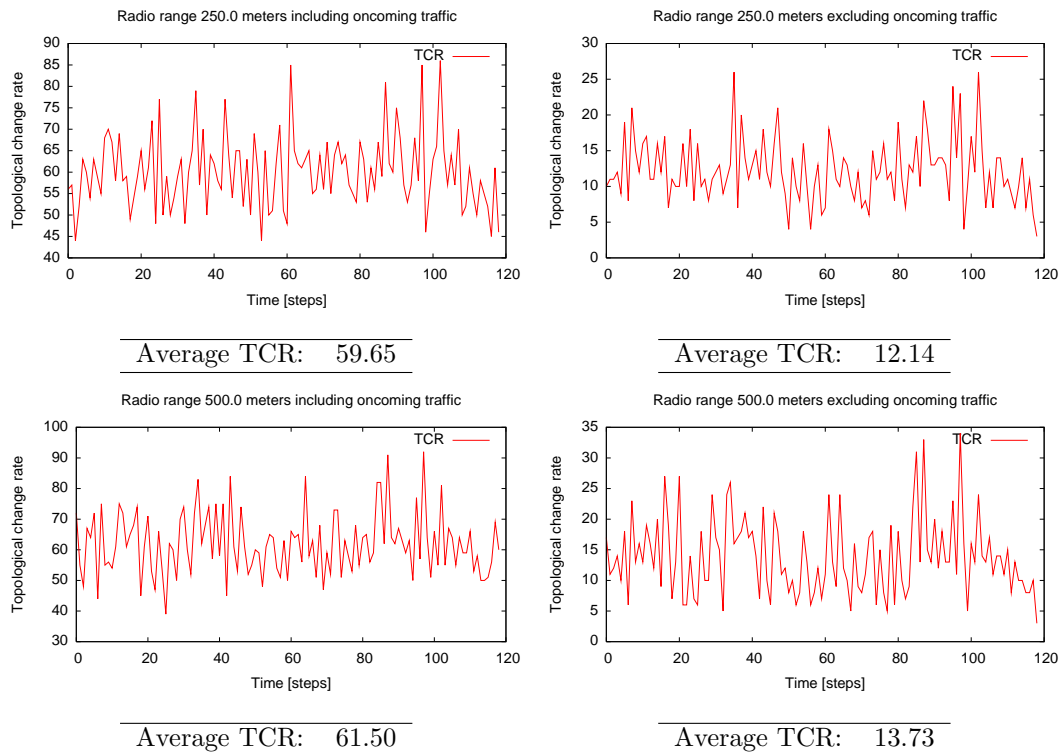
Radio range: 500.0 meters, bin size: 250.0 meters

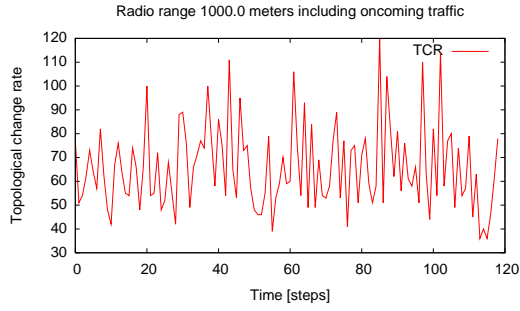


Radio range: 1000.0 meters, bin size: 250.0 meters

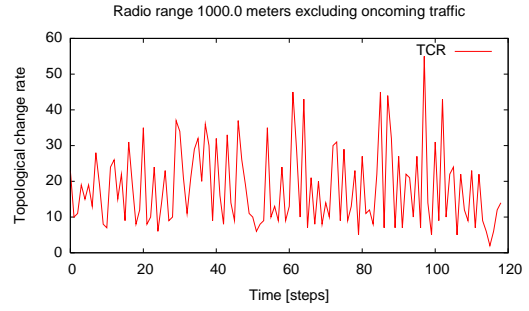


A.8.5. Topological Change Rate (TCR)



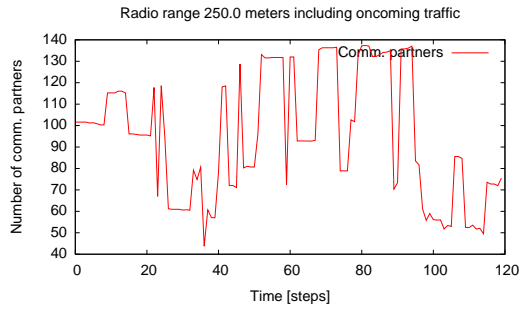


Average TCR: 65.31

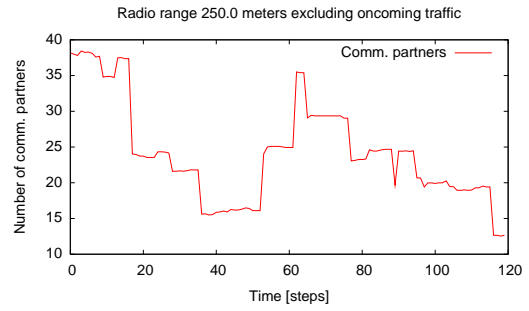


Average TCR: 18.08

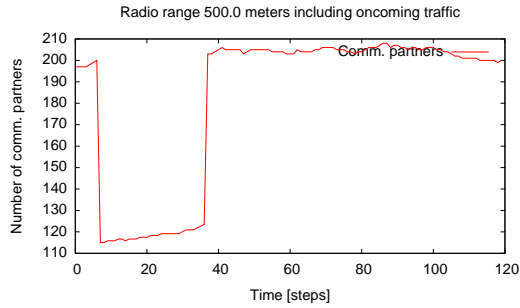
A.8.6. Total number of communication partners



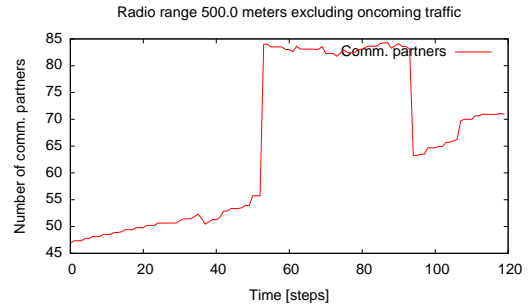
Avg. comm. partners: 94.49
Avg. active nodes: 203.97



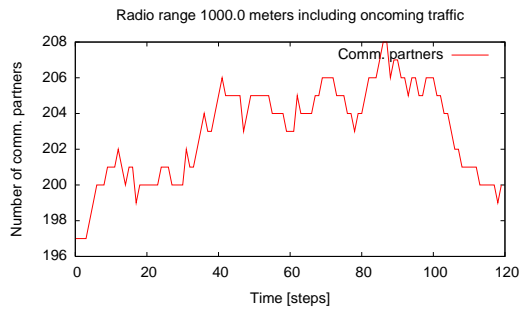
Avg. comm. partners: 24.28
Avg. active nodes: 203.97



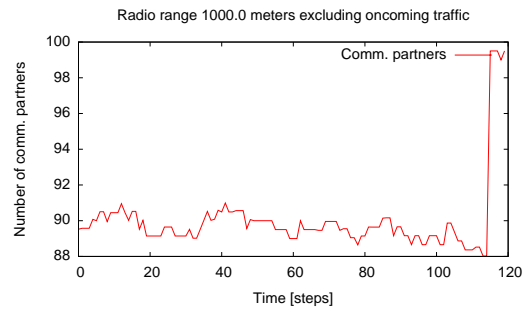
Avg. comm. partners: 182.37
Avg. active nodes: 203.97



Avg. comm. partners: 65.46
Avg. active nodes: 203.97

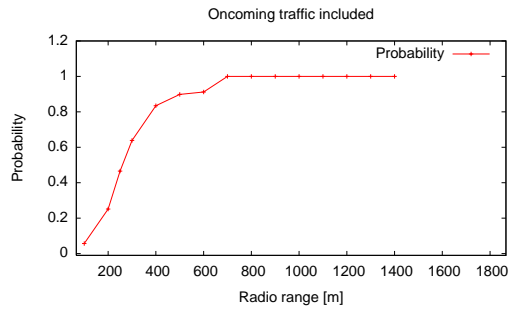


Avg. comm. partners: 202.97
Avg. active nodes: 203.97

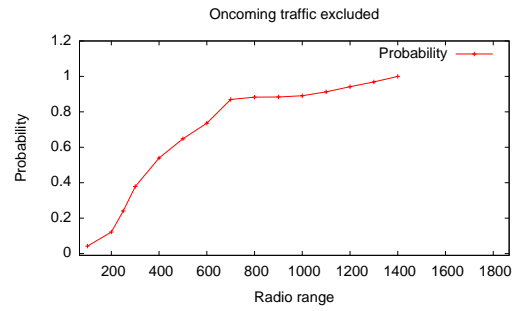


Avg. comm. partners: 89.99
Avg. active nodes: 203.97

A.8.7. Probability of being able to communicate with an arbitrary node



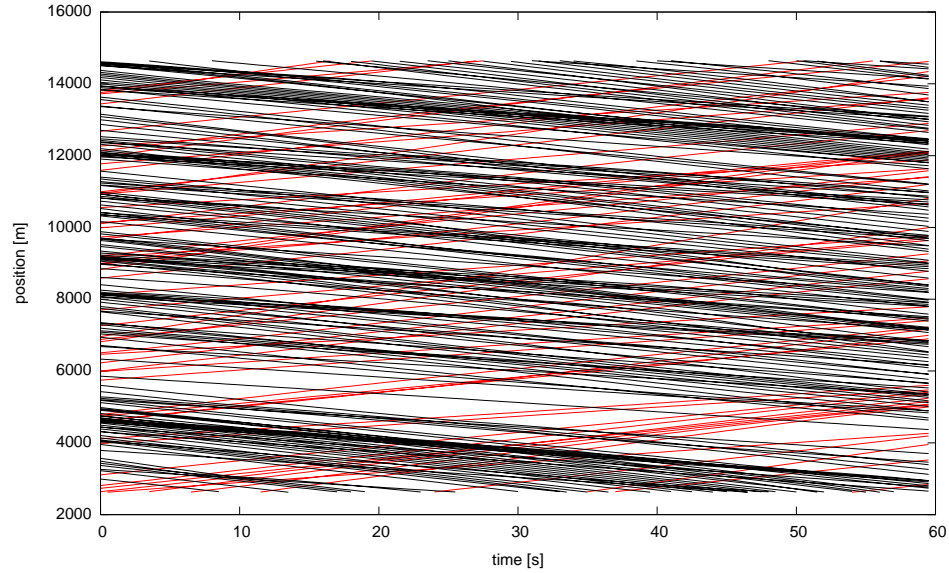
100.0 m:	0.06
200.0 m:	0.25
250.0 m:	0.47
300.0 m:	0.64
400.0 m:	0.83
500.0 m:	0.90
600.0 m:	0.91
700.0 m:	1.00
800.0 m:	1.00
900.0 m:	1.00
1000.0 m:	1.00
1100.0 m:	1.00
1200.0 m:	1.00
1300.0 m:	1.00
1400.0 m:	1.00



100.0 m:	0.04
200.0 m:	0.12
250.0 m:	0.24
300.0 m:	0.38
400.0 m:	0.54
500.0 m:	0.65
600.0 m:	0.74
700.0 m:	0.87
800.0 m:	0.88
900.0 m:	0.88
1000.0 m:	0.89
1100.0 m:	0.91
1200.0 m:	0.94
1300.0 m:	0.97
1400.0 m:	1.00

A.9. Scenario “mvmnt-hwgui-02lpd-02-06npkm-04.txt”

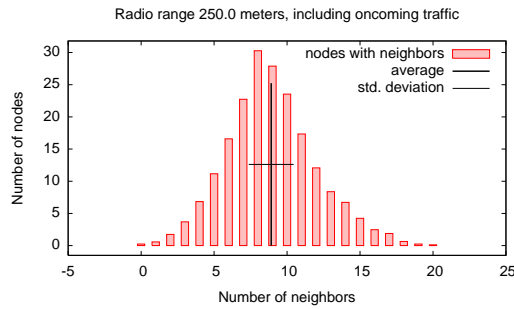
A.9.1. Trajectory plot



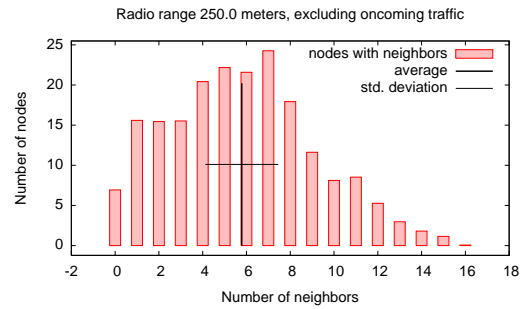
A.9.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	36.51
Number of nodes	239
Number of nodes (up)	57
Number of nodes (down)	182
Average node density [N/km]	17.27
Nodes per km and lane (up) [$N/(km \cdot lane)$]	2
Nodes per km and lane (down) [$N/(km \cdot lane)$]	6
Average number of active nodes	207.53
Average number of active nodes (up)	49.48
Average number of active nodes (down)	158.06
Number of lanes (up)	2
Length of valid area [m]	12020.30
Valid area start [m]	2624.00
Valid area end [m]	14644.30
Maximum CTR (both dirs) [m]	595.40

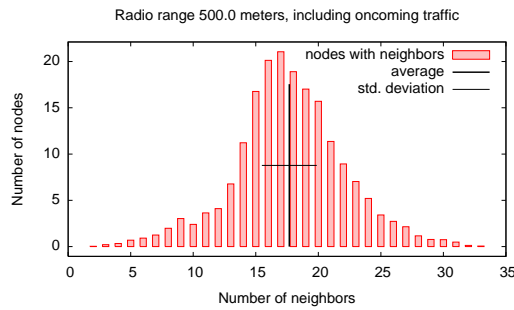
A.9.3. Neighbor histogram



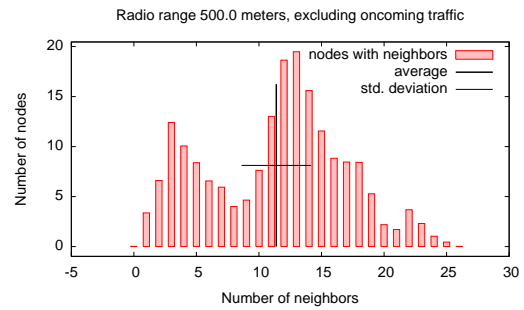
Average:	8.92
Variance:	9.44
Standard deviation:	3.07



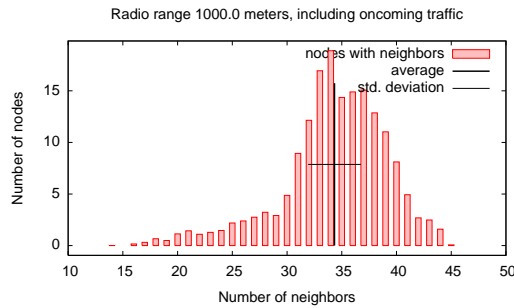
Average:	5.78
Variance:	11.11
Standard deviation:	3.33



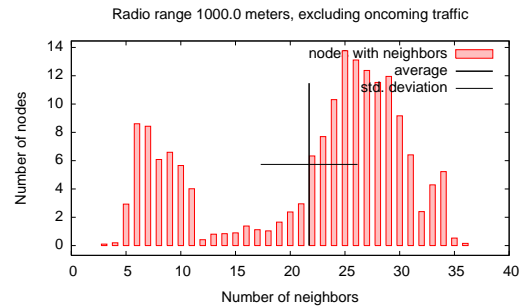
Average:	17.68
Variance:	19.29
Standard deviation:	4.39



Average:	11.38
Variance:	30.74
Standard deviation:	5.54



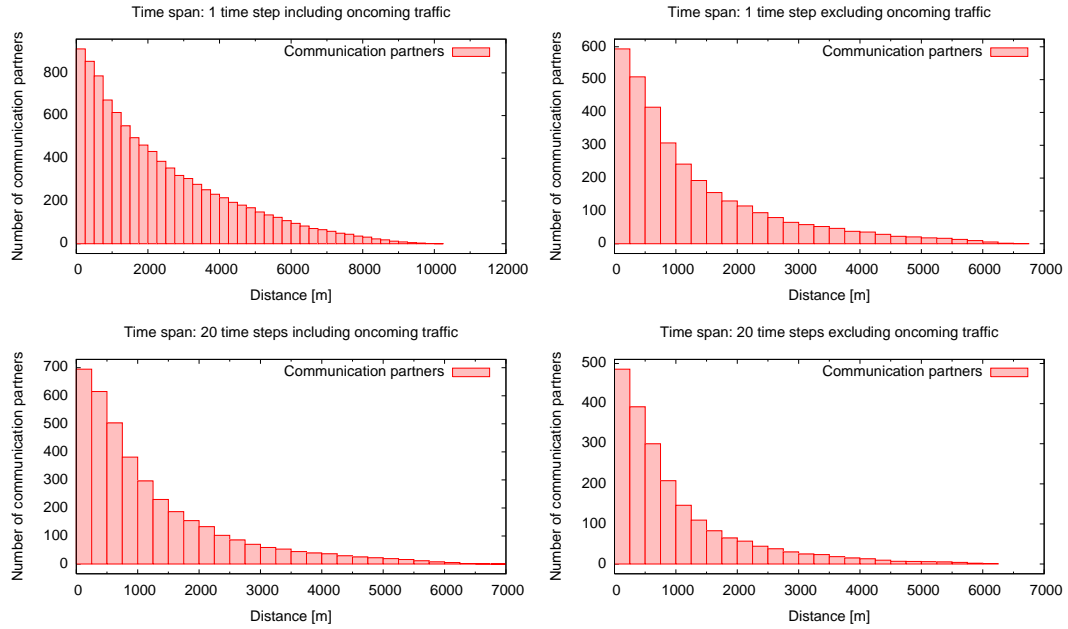
Average:	34.33
Variance:	23.20
Standard deviation:	4.82



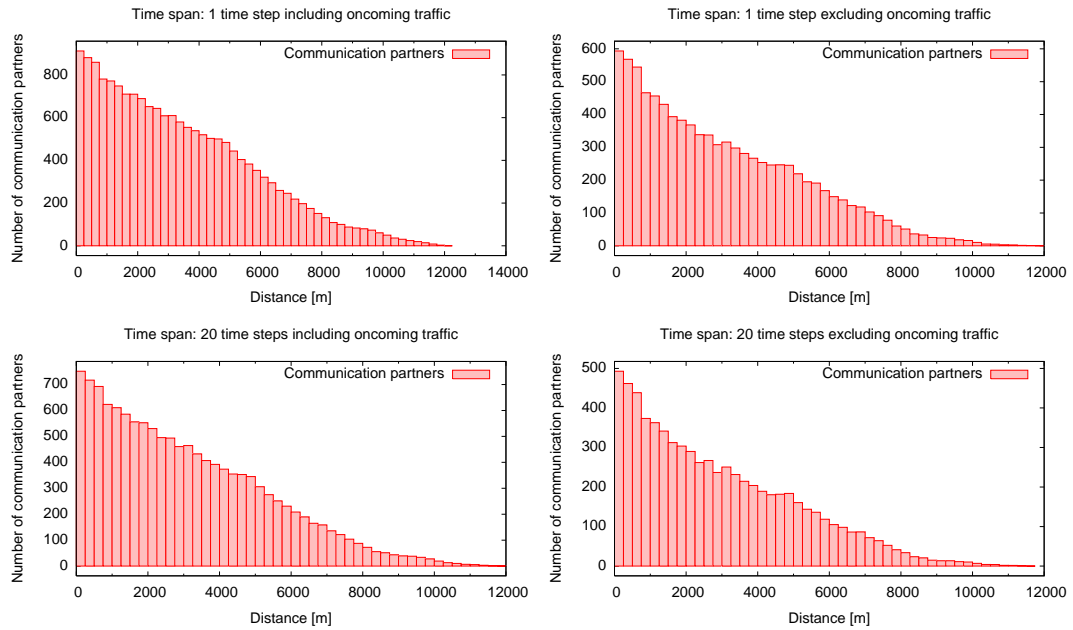
Average:	21.72
Variance:	78.22
Standard deviation:	8.84

A.9.4. Communication partner histogram

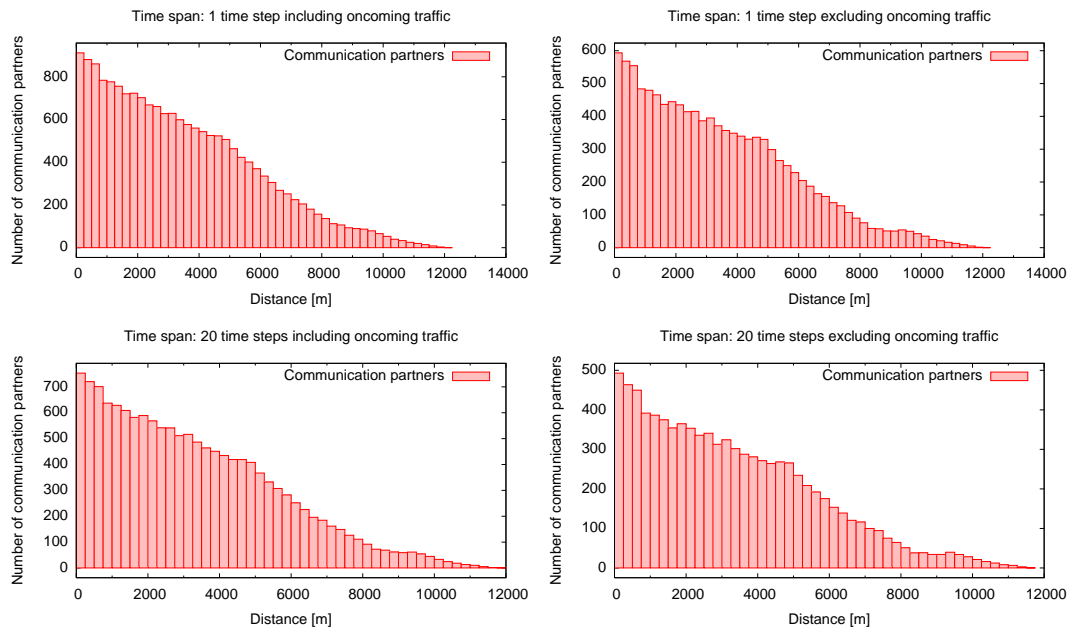
Radio range: 250.0 meters, bin size: 250.0 meters



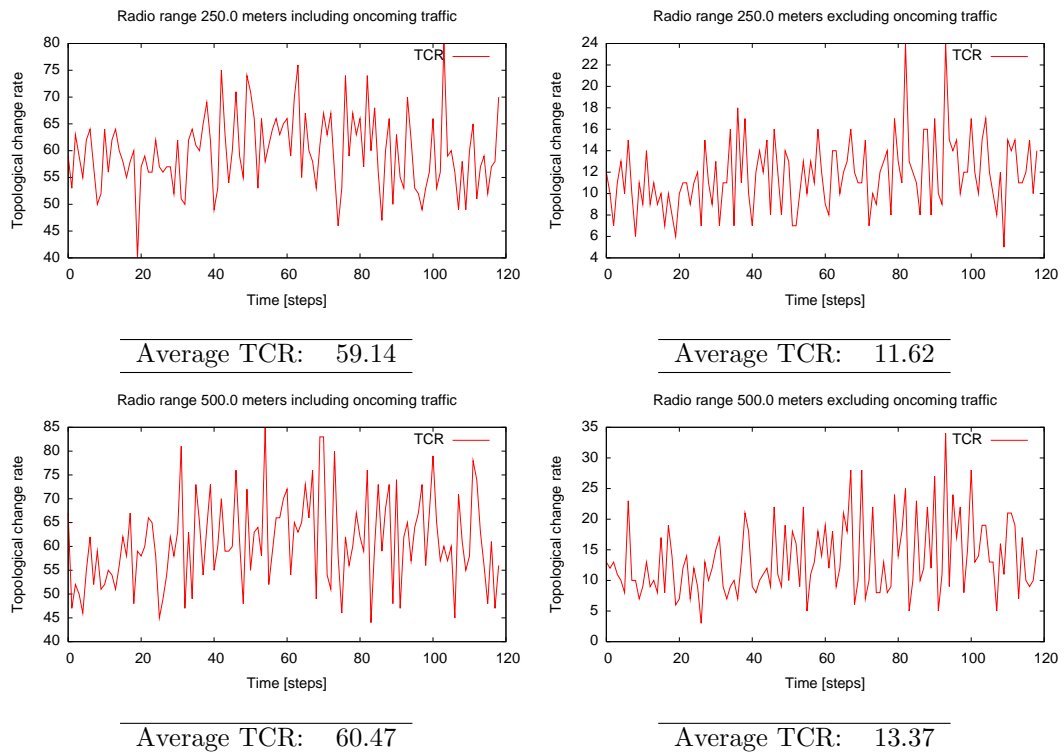
Radio range: 500.0 meters, bin size: 250.0 meters

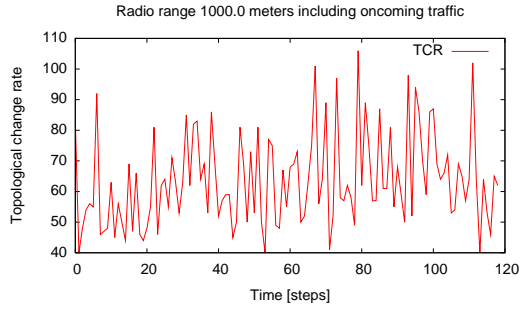


Radio range: 1000.0 meters, bin size: 250.0 meters

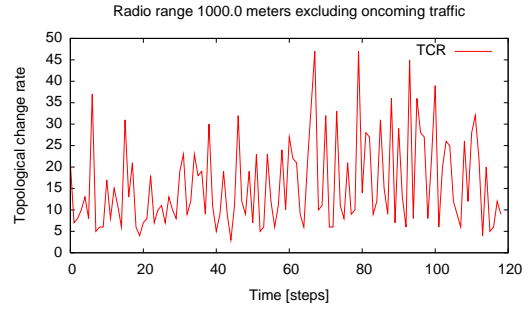


A.9.5. Topological Change Rate (TCR)



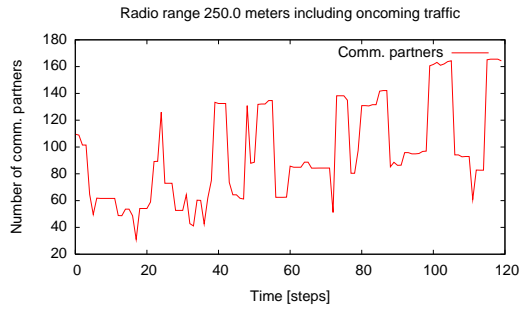


Average TCR: 63.05

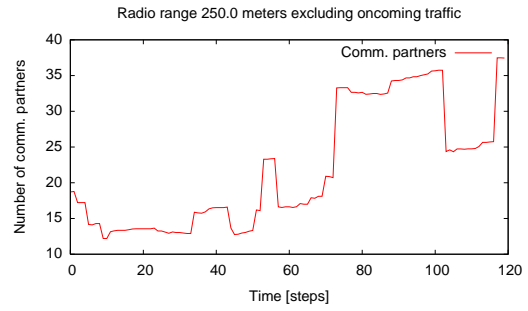


Average TCR: 15.83

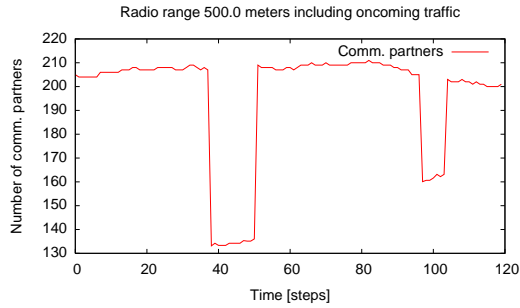
A.9.6. Total number of communication partners



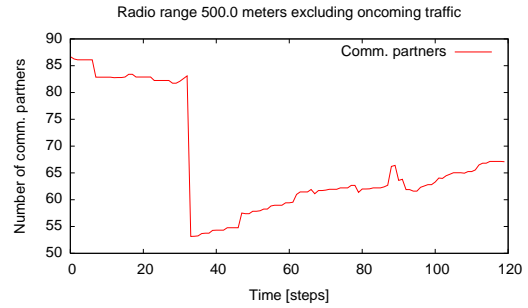
Avg. comm. partners: 94.51
Avg. active nodes: 207.53



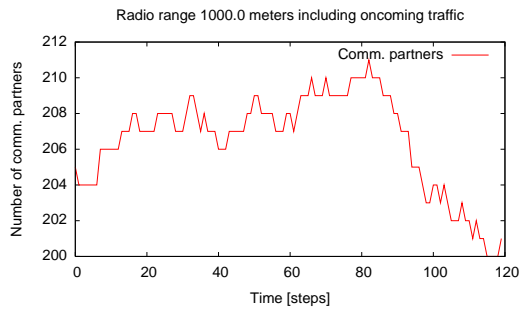
Avg. comm. partners: 21.82
Avg. active nodes: 207.53



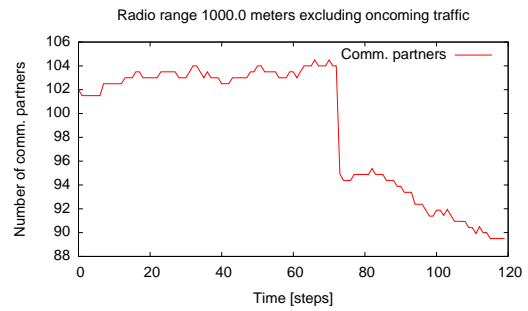
Avg. comm. partners: 196.20
Avg. active nodes: 207.53



Avg. comm. partners: 67.23
Avg. active nodes: 207.53

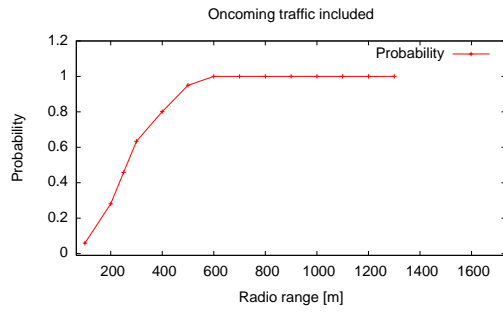


Avg. comm. partners: 206.53
Avg. active nodes: 207.53

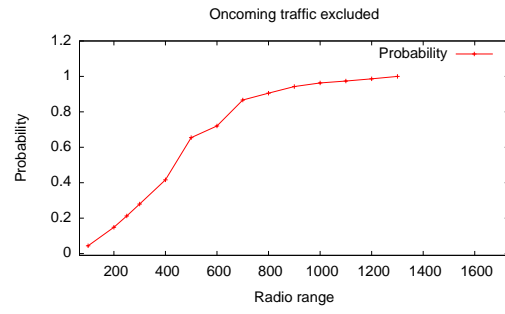


Avg. comm. partners: 98.96
Avg. active nodes: 207.53

A.9.7. Probability of being able to communicate with an arbitrary node



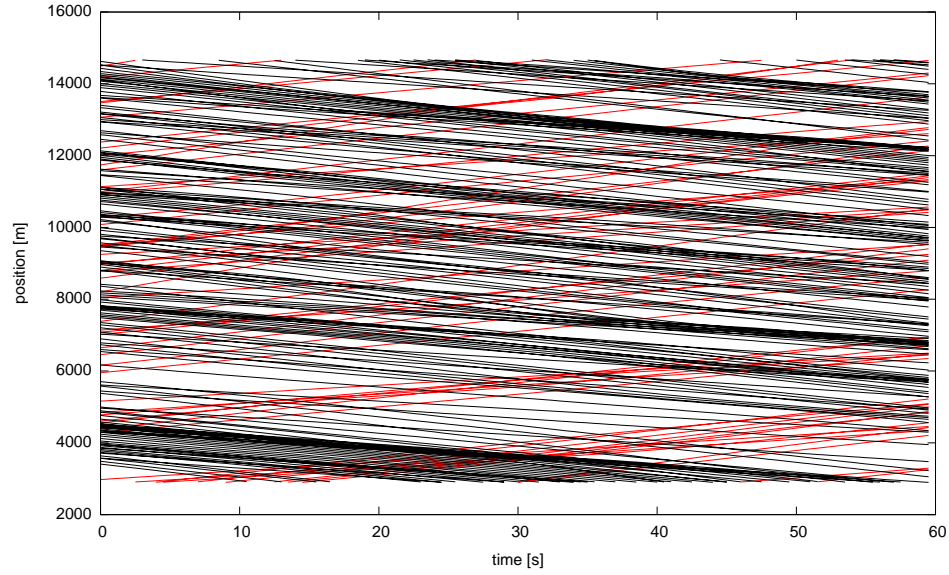
100.0 m:	0.06
200.0 m:	0.28
250.0 m:	0.46
300.0 m:	0.63
400.0 m:	0.80
500.0 m:	0.95
600.0 m:	1.00
700.0 m:	1.00
800.0 m:	1.00
900.0 m:	1.00
1000.0 m:	1.00
1100.0 m:	1.00
1200.0 m:	1.00
1300.0 m:	1.00



100.0 m:	0.04
200.0 m:	0.15
250.0 m:	0.21
300.0 m:	0.28
400.0 m:	0.42
500.0 m:	0.65
600.0 m:	0.72
700.0 m:	0.87
800.0 m:	0.91
900.0 m:	0.94
1000.0 m:	0.96
1100.0 m:	0.97
1200.0 m:	0.99
1300.0 m:	1.00

A.10. Scenario “mvmnt-hwgui-02lpd-02-06npkm-05.txt”

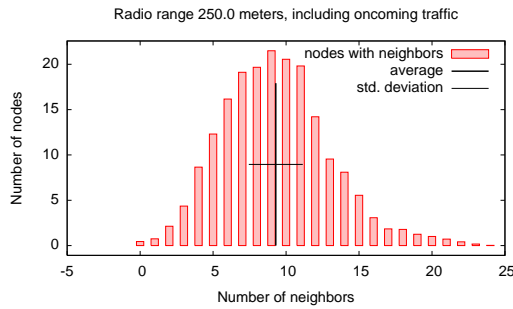
A.10.1. Trajectory plot



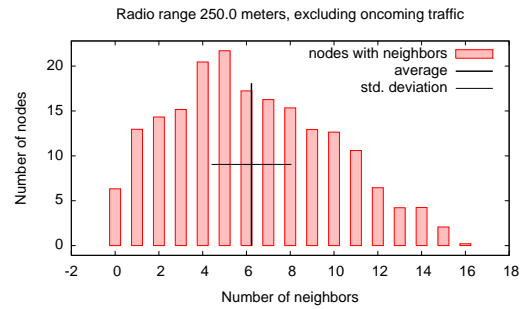
A.10.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	35.89
Number of nodes	239
Number of nodes (up)	56
Number of nodes (down)	183
Average node density [N/km]	17.24
Nodes per km and lane (up) [$N/(km \cdot lane)$]	2
Nodes per km and lane (down) [$N/(km \cdot lane)$]	6
Average number of active nodes	202.91
Average number of active nodes (up)	48.13
Average number of active nodes (down)	154.78
Number of lanes (up)	2
Length of valid area [m]	11772.60
Valid area start [m]	2898.70
Valid area end [m]	14671.30
Maximum CTR (both dirs) [m]	528.01

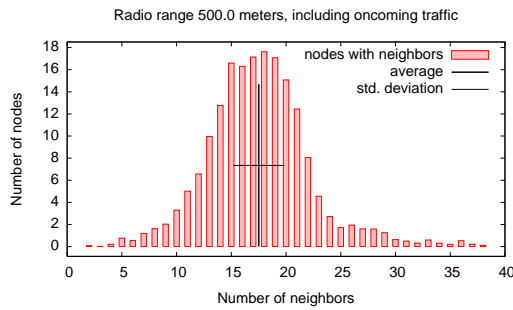
A.10.3. Neighbor histogram



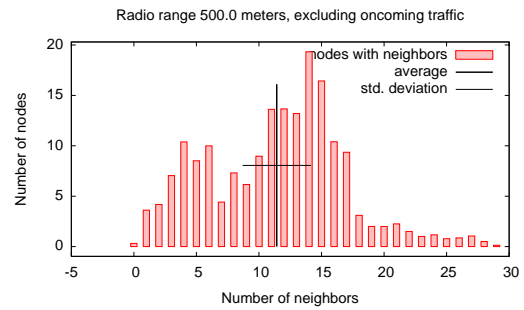
Average:	9.30
Variance:	13.67
Standard deviation:	3.70



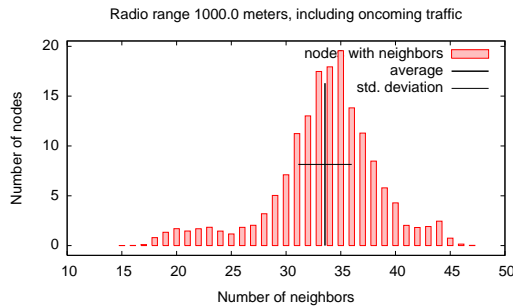
Average:	6.23
Variance:	13.32
Standard deviation:	3.65



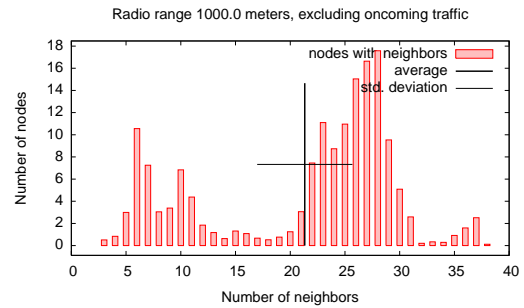
Average:	17.51
Variance:	22.24
Standard deviation:	4.72



Average:	11.42
Variance:	29.95
Standard deviation:	5.47



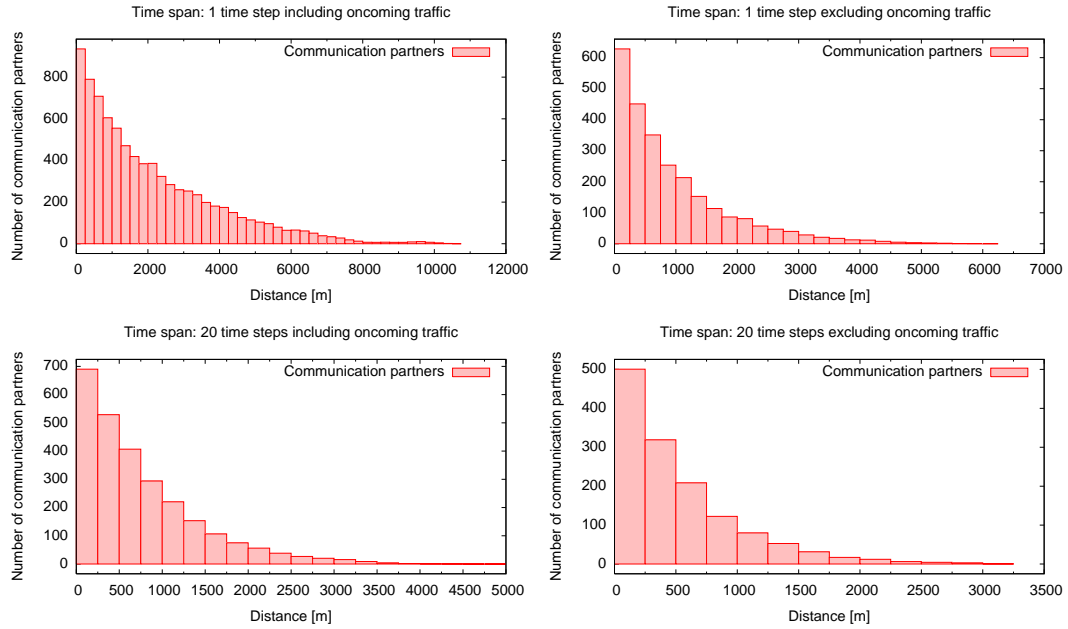
Average:	33.56
Variance:	23.87
Standard deviation:	4.89



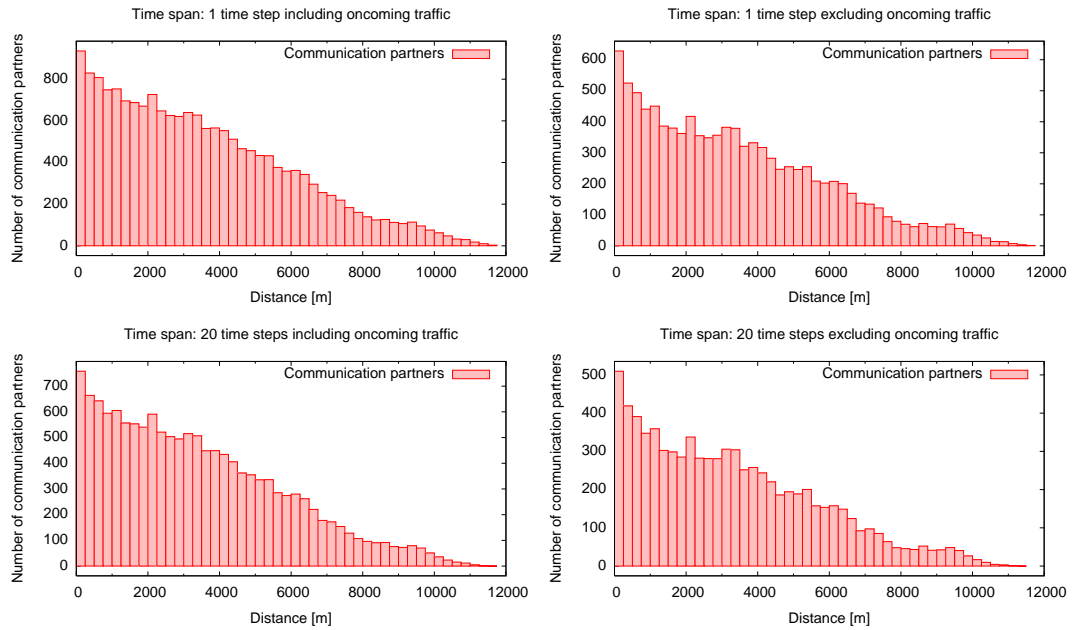
Average:	21.33
Variance:	75.77
Standard deviation:	8.70

A.10.4. Communication partner histogram

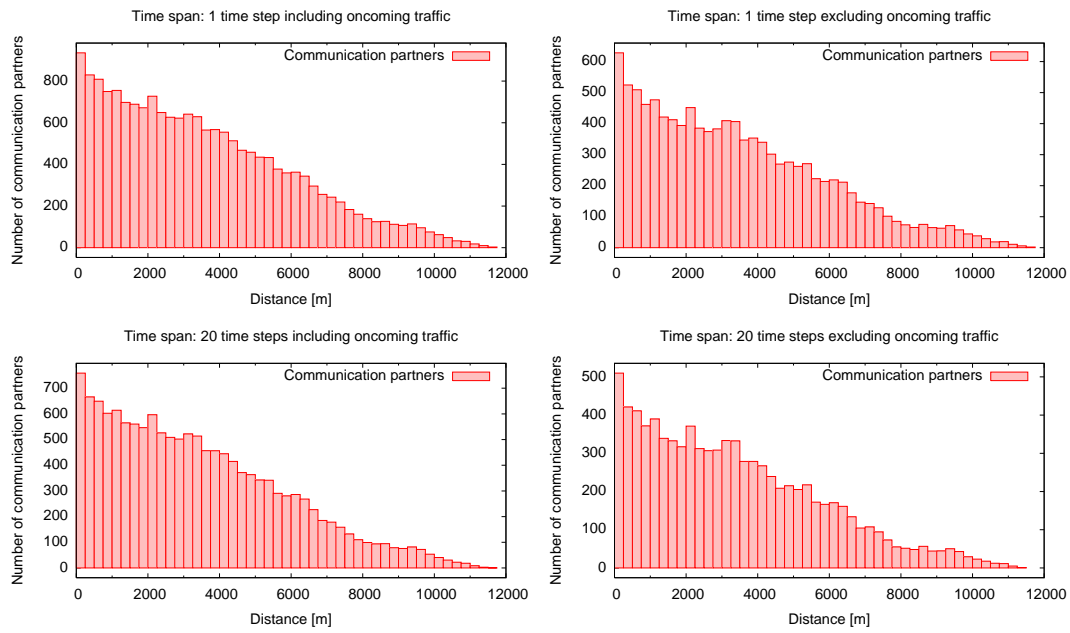
Radio range: 250.0 meters, bin size: 250.0 meters



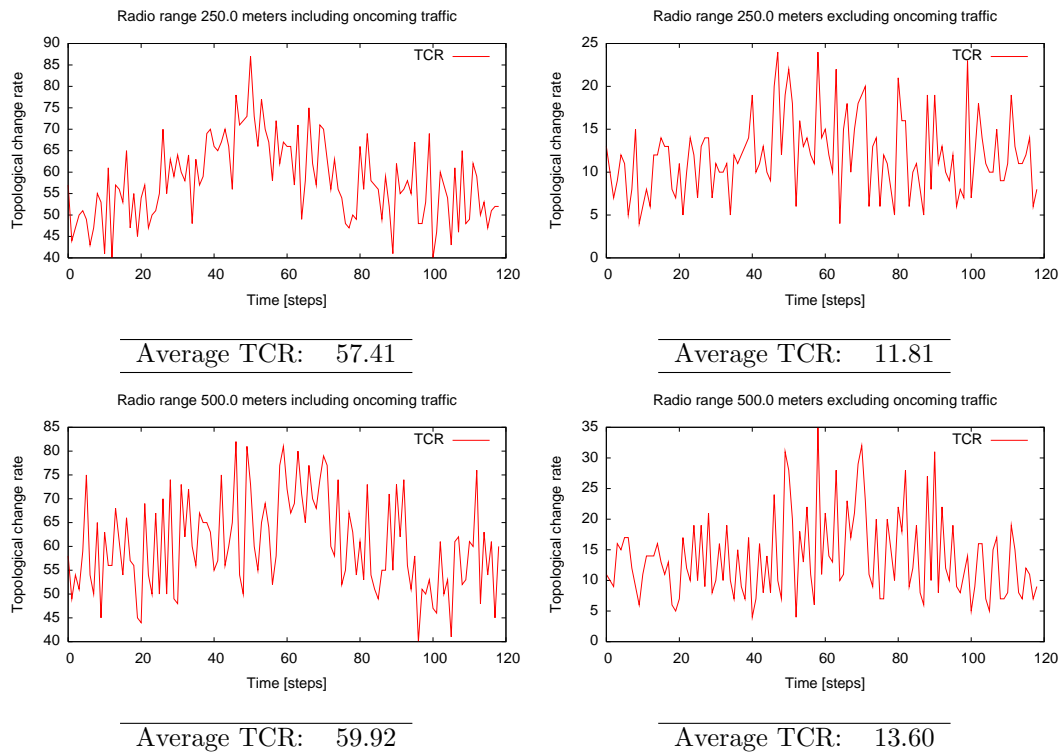
Radio range: 500.0 meters, bin size: 250.0 meters

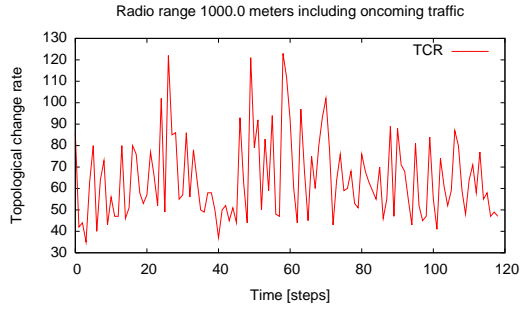


Radio range: 1000.0 meters, bin size: 250.0 meters

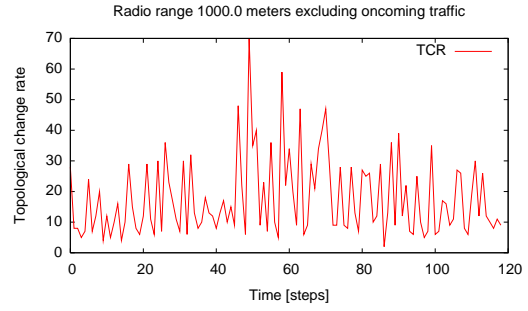


A.10.5. Topological Change Rate (TCR)



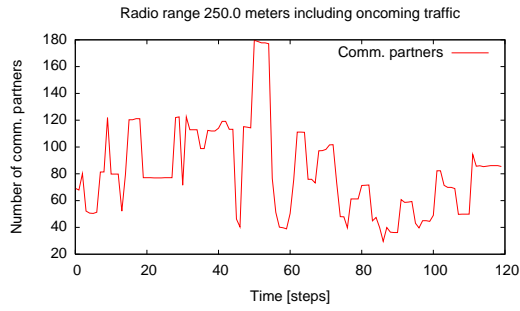


Average TCR: 64.00

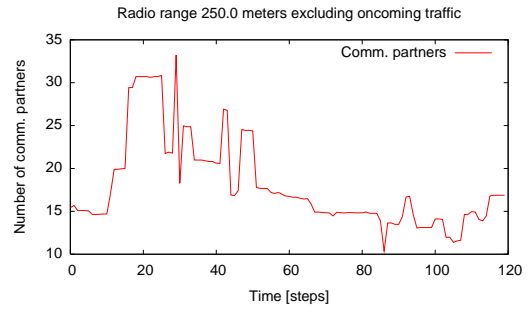


Average TCR: 17.47

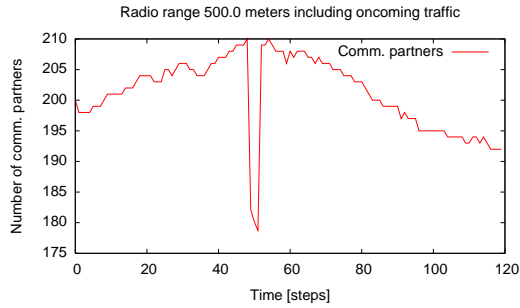
A.10.6. Total number of communication partners



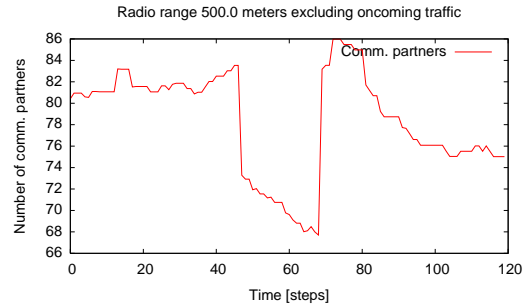
Avg. comm. partners: 81.17
Avg. active nodes: 202.91



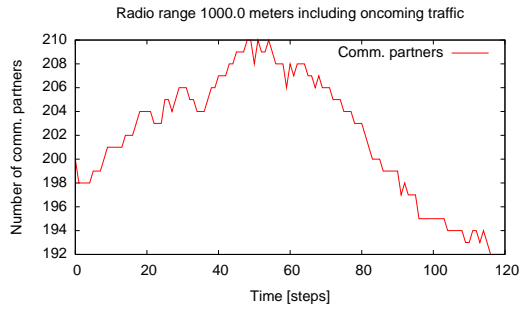
Avg. comm. partners: 17.99
Avg. active nodes: 202.91



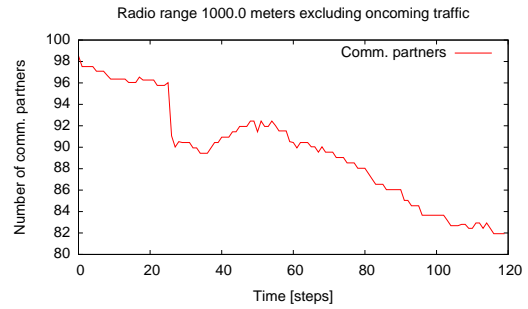
Avg. comm. partners: 201.18
Avg. active nodes: 202.91



Avg. comm. partners: 78.37
Avg. active nodes: 202.91

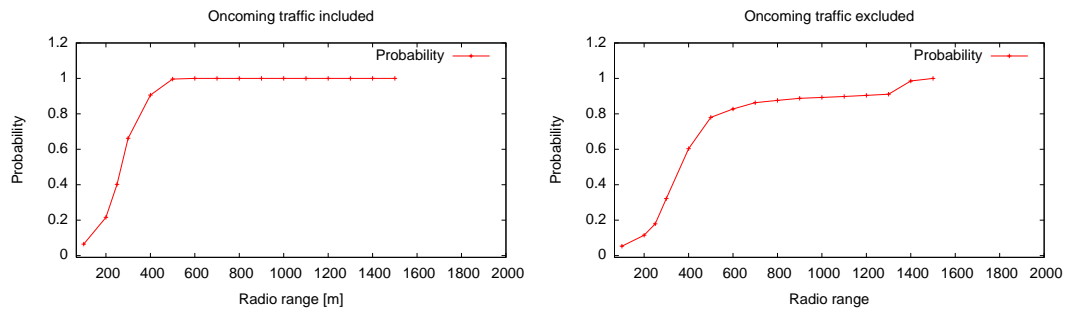


Avg. comm. partners: 201.91
Avg. active nodes: 202.91



Avg. comm. partners: 89.67
Avg. active nodes: 202.91

A.10.7. Probability of being able to communicate with an arbitrary node

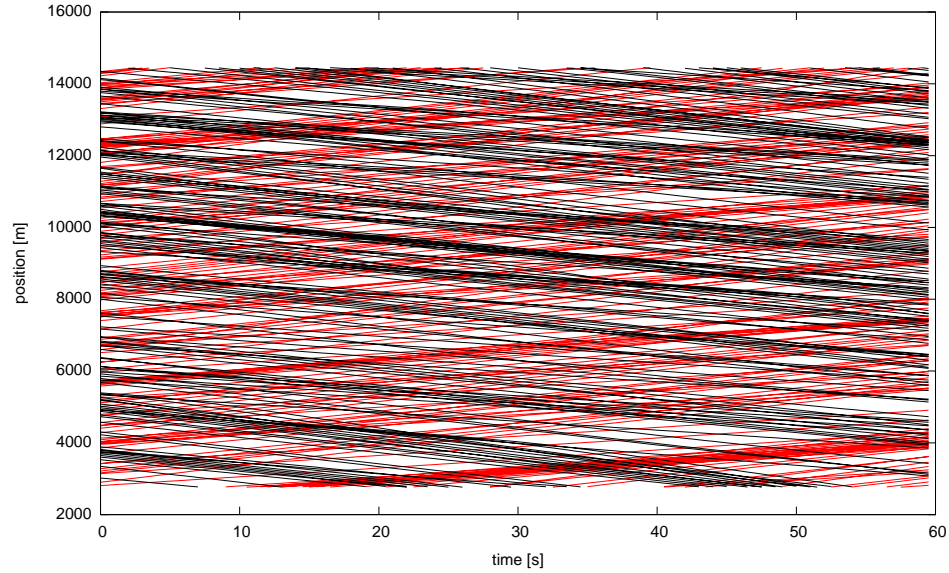


100.0 m:	0.06
200.0 m:	0.22
250.0 m:	0.40
300.0 m:	0.66
400.0 m:	0.91
500.0 m:	1.00
600.0 m:	1.00
700.0 m:	1.00
800.0 m:	1.00
900.0 m:	1.00
1000.0 m:	1.00
1100.0 m:	1.00
1200.0 m:	1.00
1300.0 m:	1.00
1400.0 m:	1.00
1500.0 m:	1.00

100.0 m:	0.05
200.0 m:	0.11
250.0 m:	0.18
300.0 m:	0.32
400.0 m:	0.60
500.0 m:	0.78
600.0 m:	0.83
700.0 m:	0.86
800.0 m:	0.88
900.0 m:	0.89
1000.0 m:	0.89
1100.0 m:	0.90
1200.0 m:	0.90
1300.0 m:	0.91
1400.0 m:	0.99
1500.0 m:	1.00

A.11. Scenario “mvmnt-hwgui-02lpd-06-06npkm-01.txt”

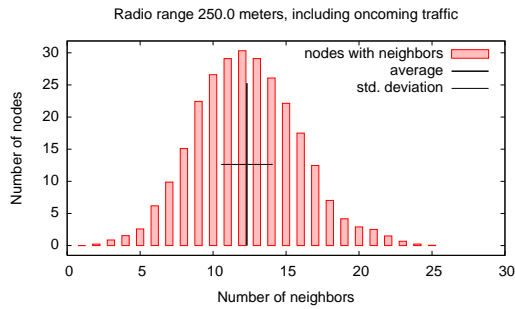
A.11.1. Trajectory plot



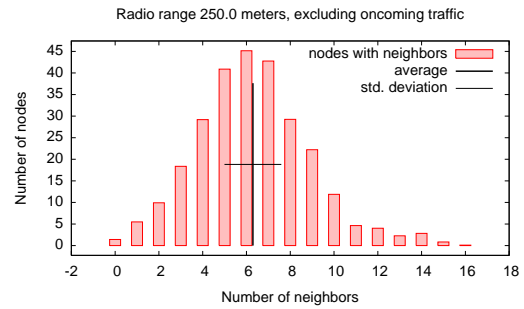
A.11.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	36.08
Number of nodes	340
Number of nodes (up)	170
Number of nodes (down)	170
Average node density [N/km]	24.31
Nodes per km and lane (up) [$N/(km \cdot lane)$]	6
Nodes per km and lane (down) [$N/(km \cdot lane)$]	6
Average number of active nodes	284.12
Average number of active nodes (up)	141.52
Average number of active nodes (down)	142.60
Number of lanes (up)	2
Length of valid area [m]	11688.80
Valid area start [m]	2764.20
Valid area end [m]	14453.00
Maximum CTR (both dirs) [m]	401.90

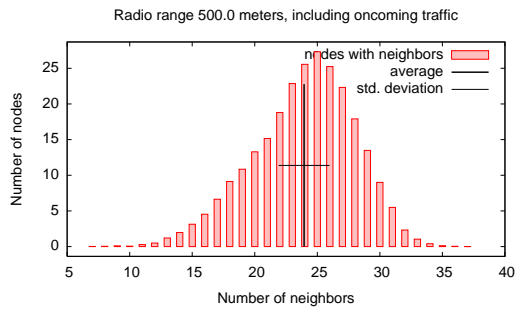
A.11.3. Neighbor histogram



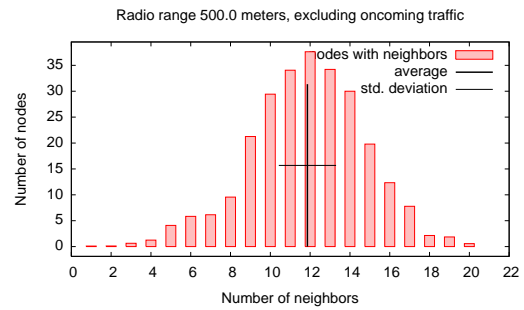
Average:	12.32
Variance:	12.50
Standard deviation:	3.54



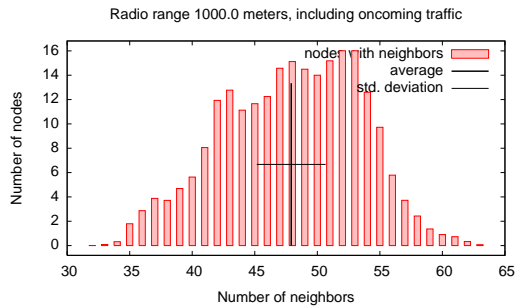
Average:	6.30
Variance:	6.74
Standard deviation:	2.60



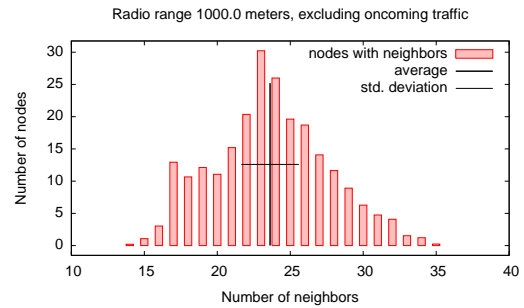
Average:	23.94
Variance:	16.54
Standard deviation:	4.07



Average:	11.86
Variance:	8.28
Standard deviation:	2.88



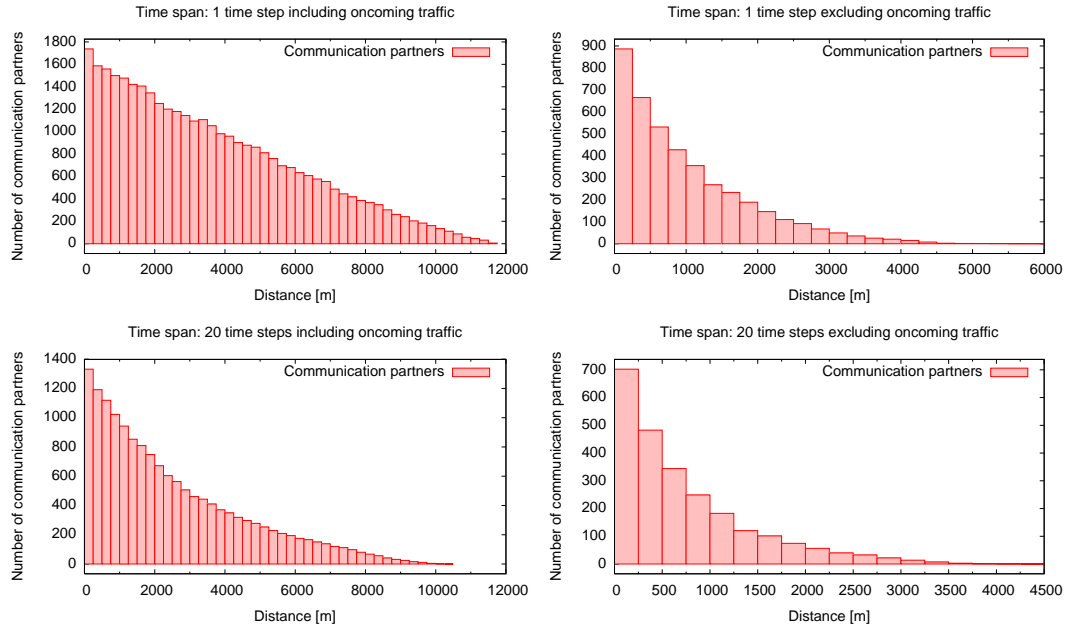
Average:	47.91
Variance:	30.30
Standard deviation:	5.50



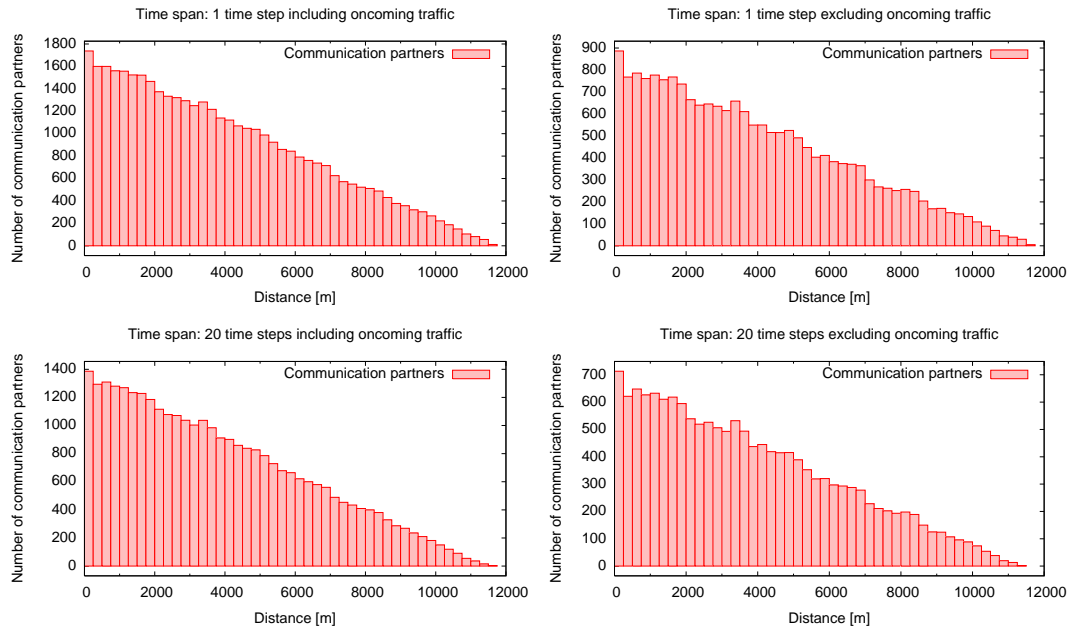
Average:	23.62
Variance:	15.57
Standard deviation:	3.95

A.11.4. Communication partner histogram

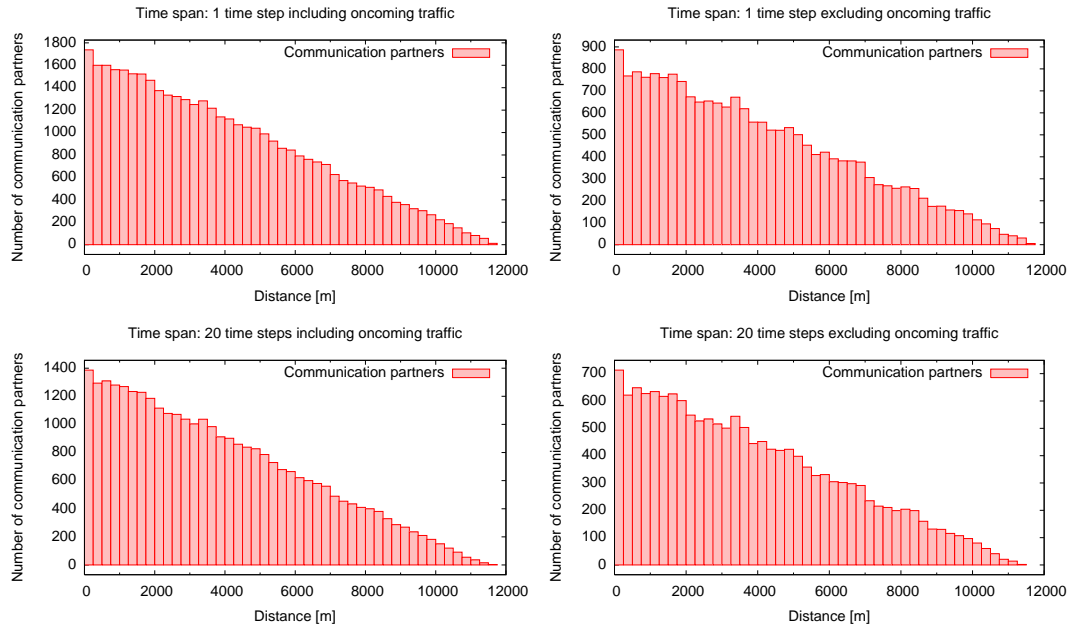
Radio range: 250.0 meters, bin size: 250.0 meters



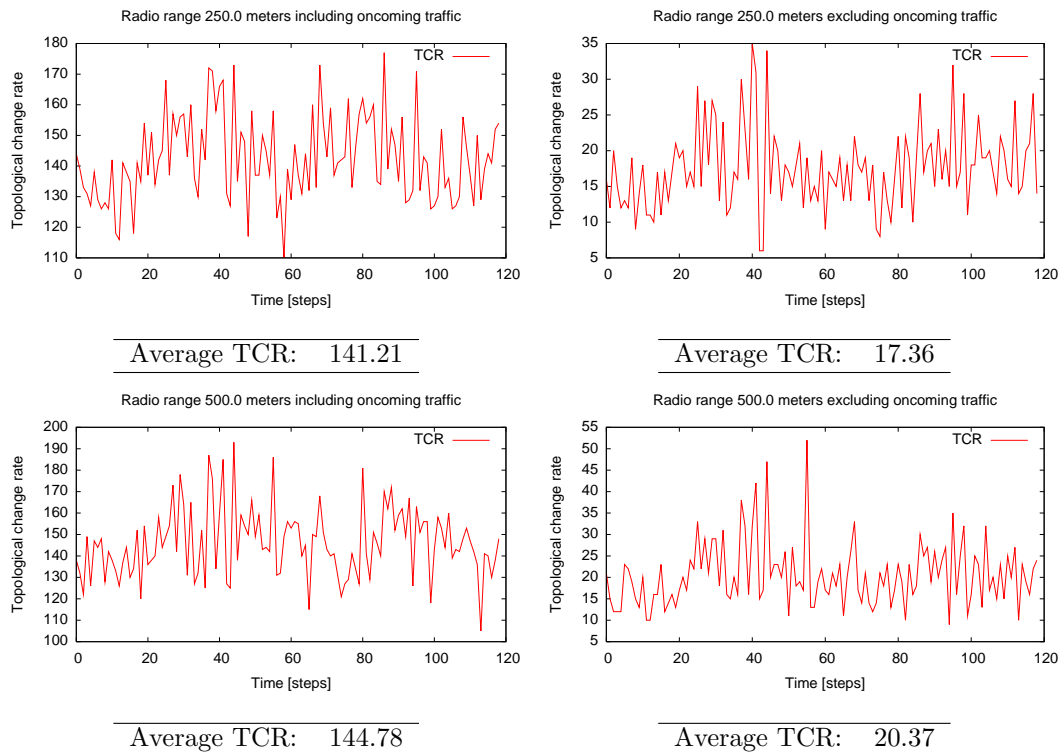
Radio range: 500.0 meters, bin size: 250.0 meters

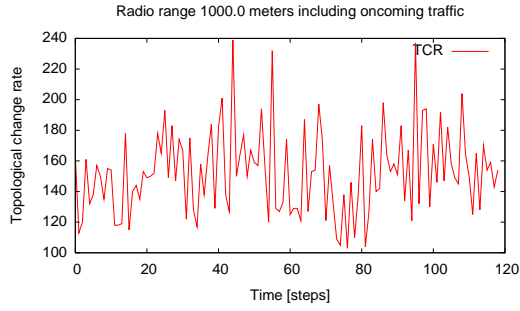


Radio range: 1000.0 meters, bin size: 250.0 meters

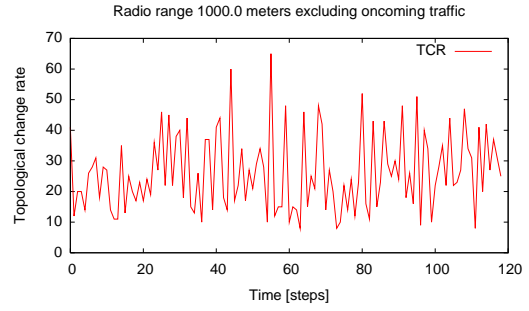


A.11.5. Topological Change Rate (TCR)



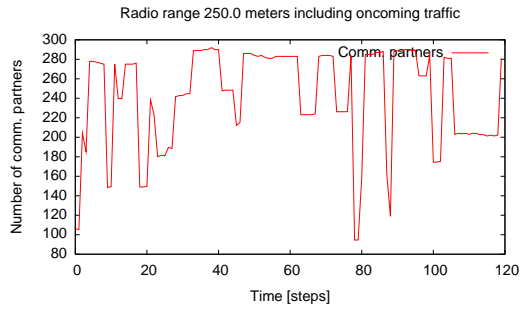


Average TCR: 151.16

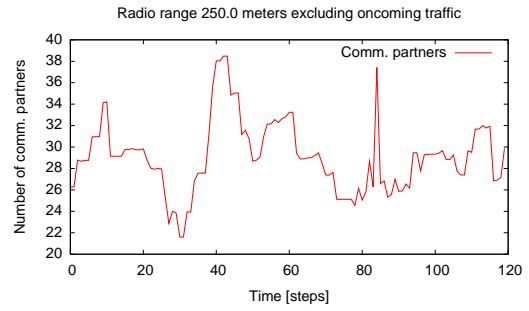


Average TCR: 25.85

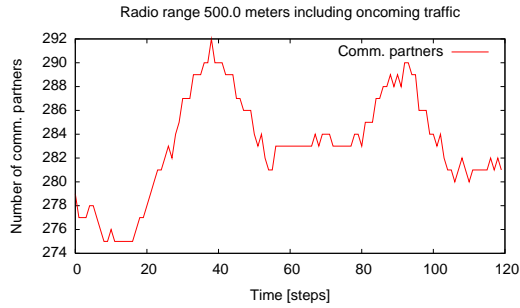
A.11.6. Total number of communication partners



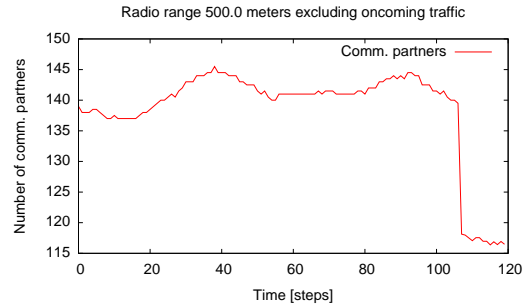
Avg. comm. partners: 240.92
Avg. active nodes: 284.12



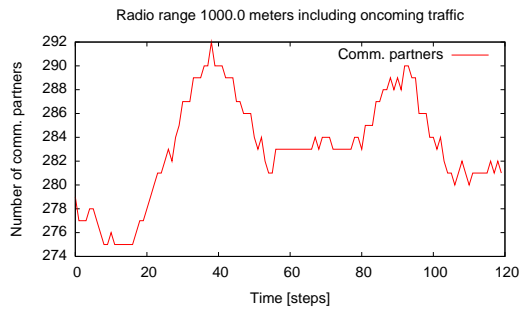
Avg. comm. partners: 29.08
Avg. active nodes: 284.12



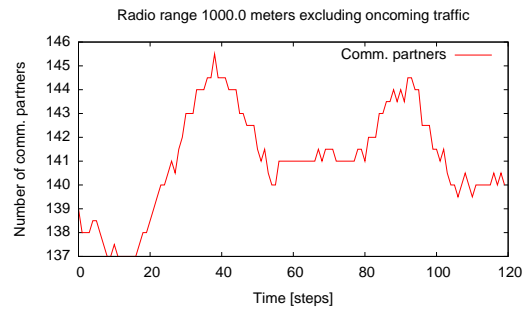
Avg. comm. partners: 283.12
Avg. active nodes: 284.12



Avg. comm. partners: 138.57
Avg. active nodes: 284.12

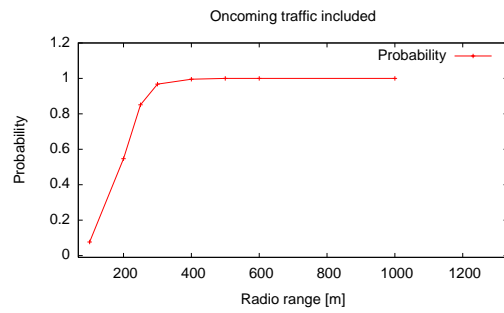


Avg. comm. partners: 283.12
Avg. active nodes: 284.12

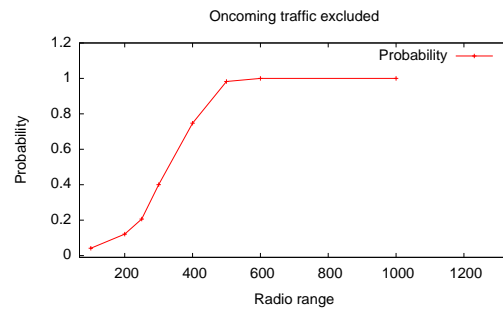


Avg. comm. partners: 141.06
Avg. active nodes: 284.12

A.11.7. Probability of being able to communicate with an arbitrary node



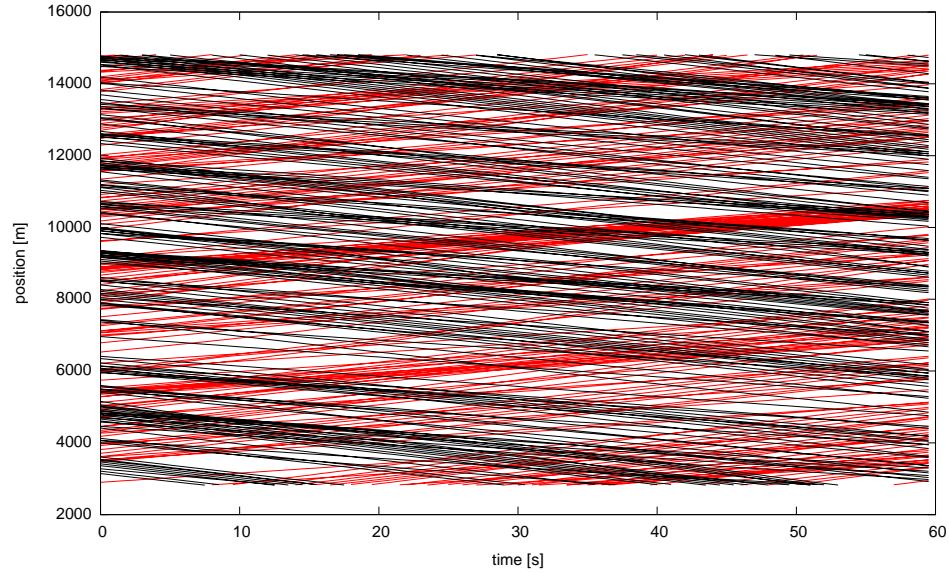
100.0 m:	0.08
200.0 m:	0.55
250.0 m:	0.85
300.0 m:	0.97
400.0 m:	1.00
500.0 m:	1.00
600.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.04
200.0 m:	0.12
250.0 m:	0.21
300.0 m:	0.40
400.0 m:	0.75
500.0 m:	0.98
600.0 m:	1.00
1000.0 m:	1.00

A.12. Scenario “mvmnt-hwgui-02lpd-06-06npkm-02.txt”

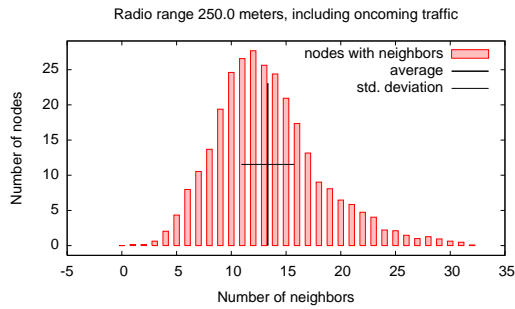
A.12.1. Trajectory plot



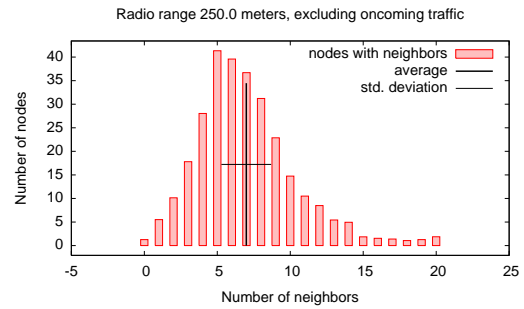
A.12.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	35.61
Number of nodes	358
Number of nodes (up)	174
Number of nodes (down)	184
Average node density [N/km]	25.08
Nodes per km and lane (up) [$N/(km \cdot lane)$]	6
Nodes per km and lane (down) [$N/(km \cdot lane)$]	6
Average number of active nodes	300.80
Average number of active nodes (up)	143.53
Average number of active nodes (down)	157.27
Number of lanes (up)	2
Length of valid area [m]	11992.20
Valid area start [m]	2821.10
Valid area end [m]	14813.30
Maximum CTR (both dirs) [m]	498.95

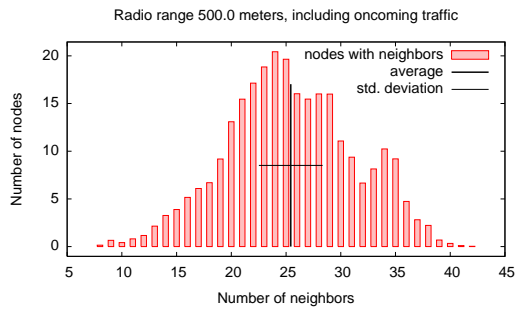
A.12.3. Neighbor histogram



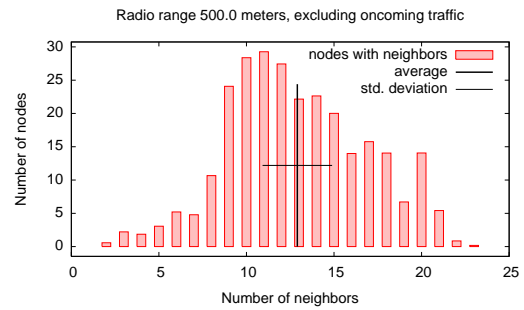
Average:	13.33
Variance:	23.23
Standard deviation:	4.82



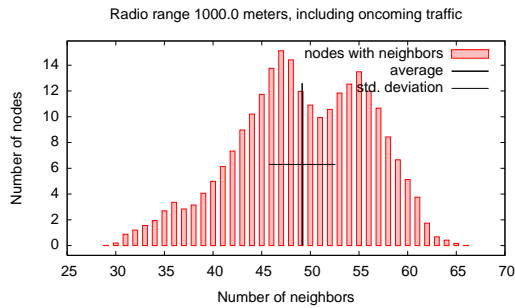
Average:	6.99
Variance:	11.63
Standard deviation:	3.41



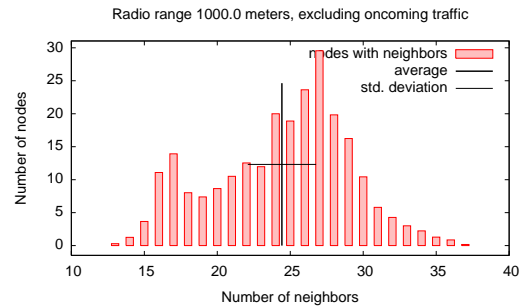
Average:	25.43
Variance:	33.97
Standard deviation:	5.83



Average:	12.90
Variance:	15.77
Standard deviation:	3.97



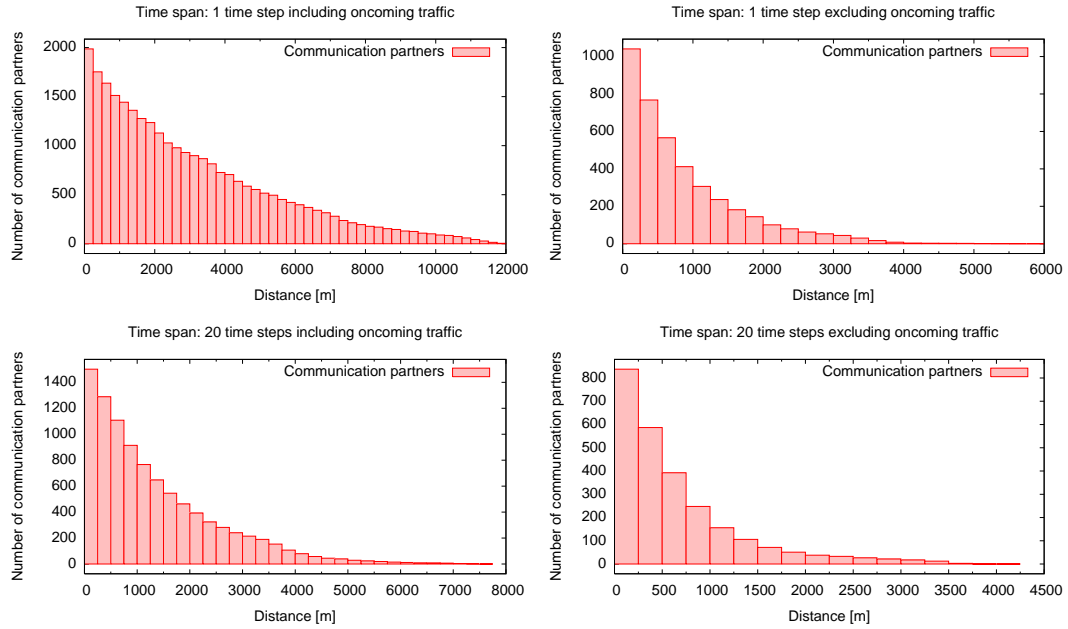
Average:	49.16
Variance:	46.61
Standard deviation:	6.83



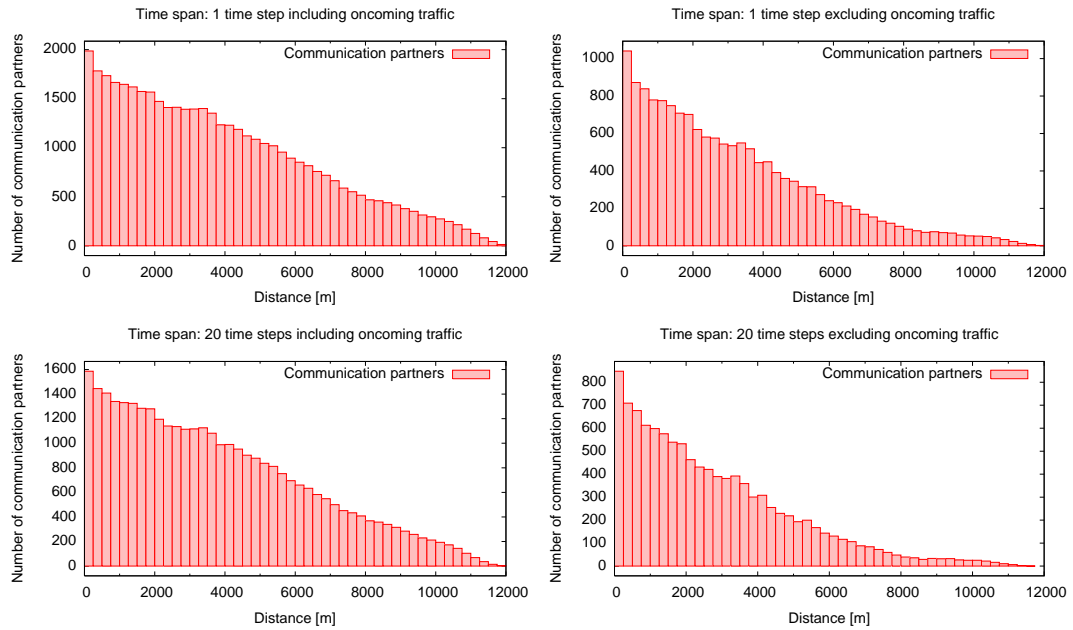
Average:	24.43
Variance:	21.94
Standard deviation:	4.68

A.12.4. Communication partner histogram

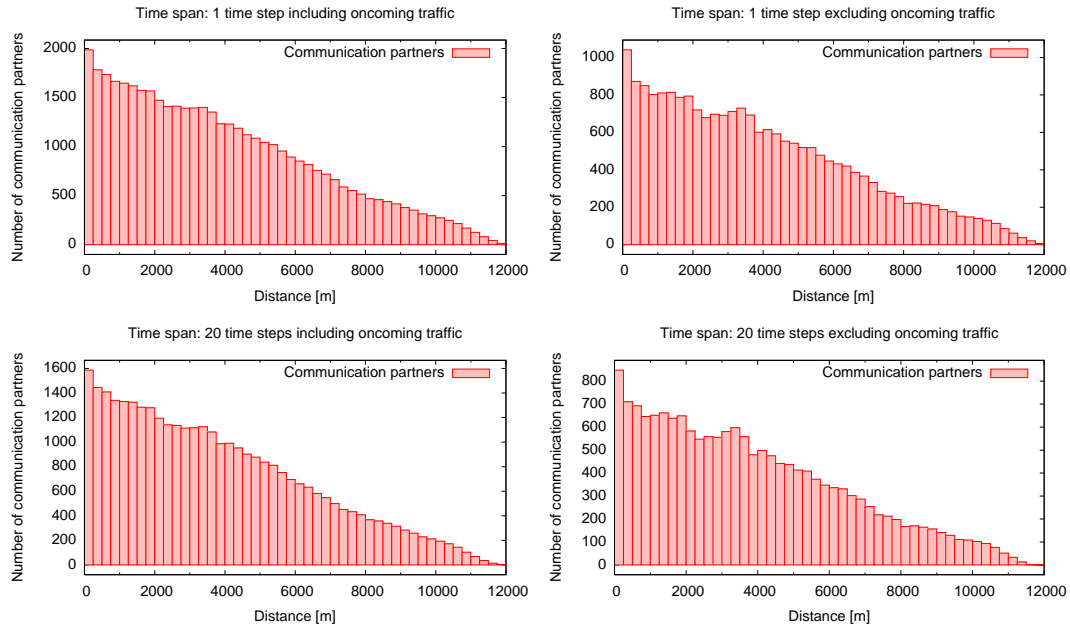
Radio range: 250.0 meters, bin size: 250.0 meters



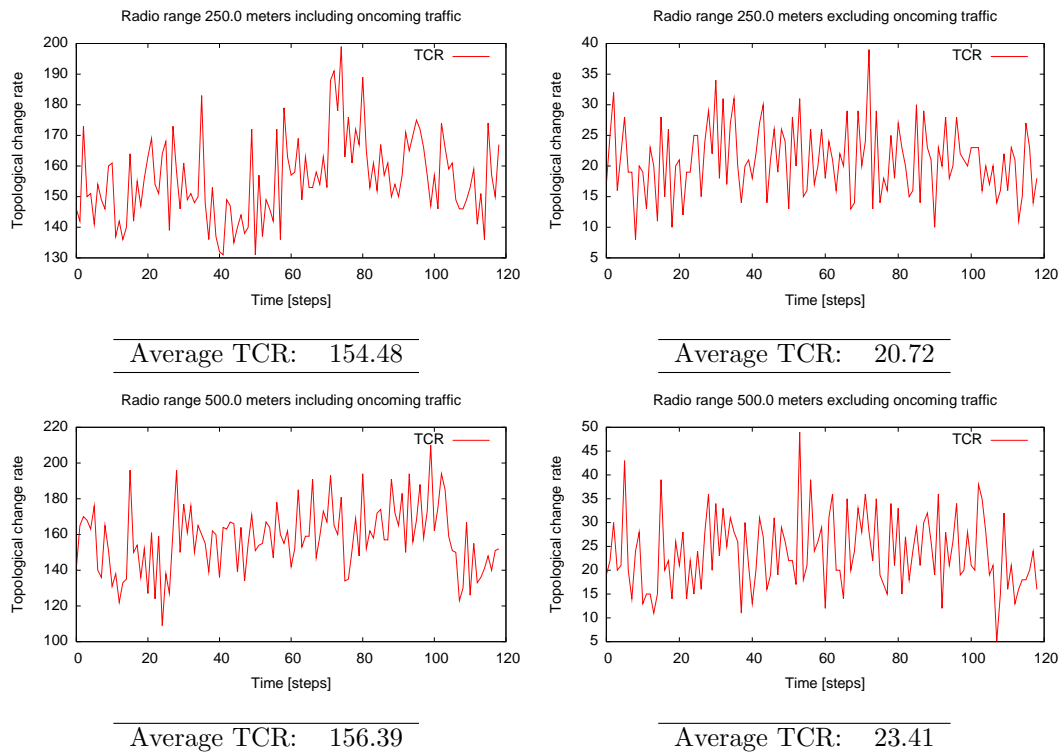
Radio range: 500.0 meters, bin size: 250.0 meters

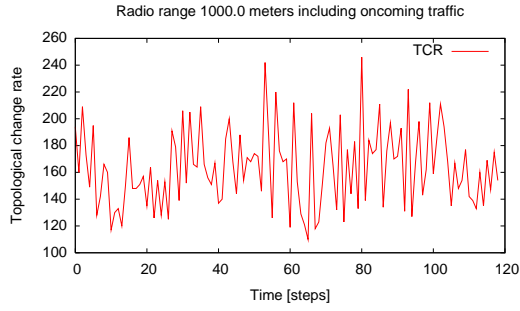


Radio range: 1000.0 meters, bin size: 250.0 meters

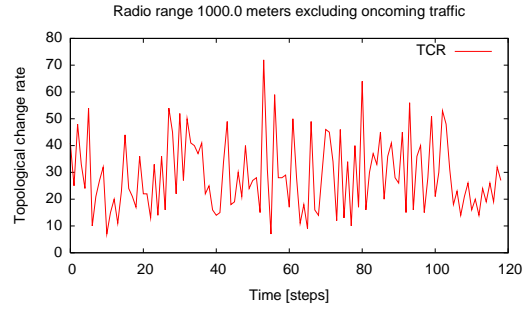


A.12.5. Topological Change Rate (TCR)



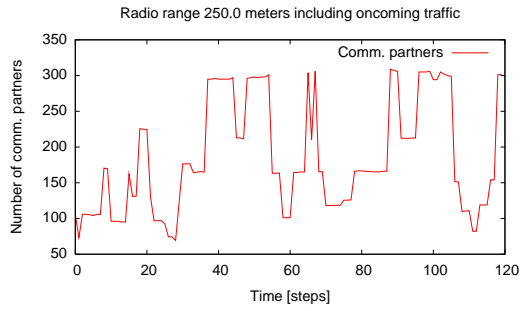


Average TCR: 162.09

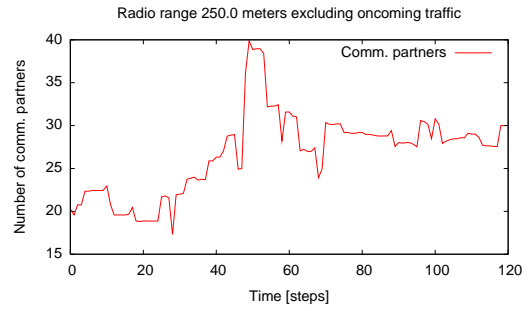


Average TCR: 28.73

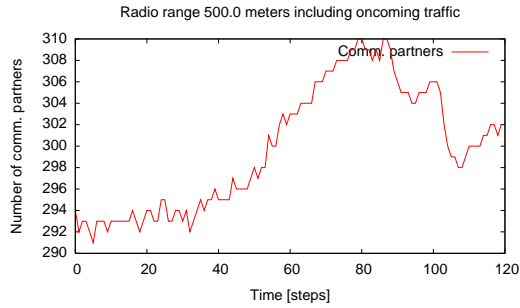
A.12.6. Total number of communication partners



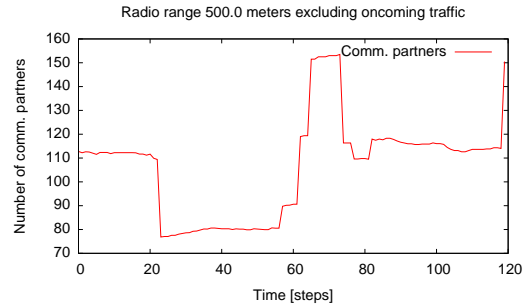
Avg. comm. partners: 184.61
Avg. active nodes: 300.80



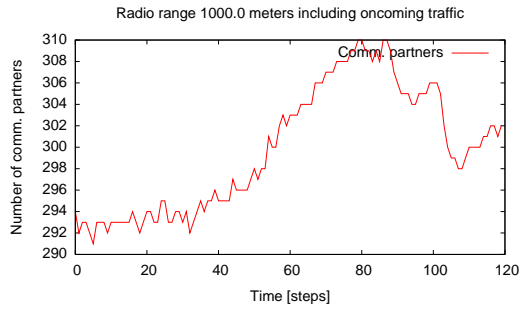
Avg. comm. partners: 26.77
Avg. active nodes: 300.80



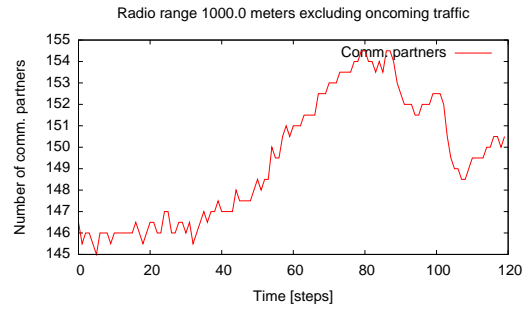
Avg. comm. partners: 299.80
Avg. active nodes: 300.80



Avg. comm. partners: 106.47
Avg. active nodes: 300.80

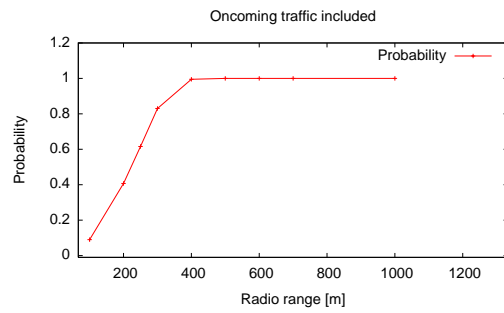


Avg. comm. partners: 299.80
Avg. active nodes: 300.80

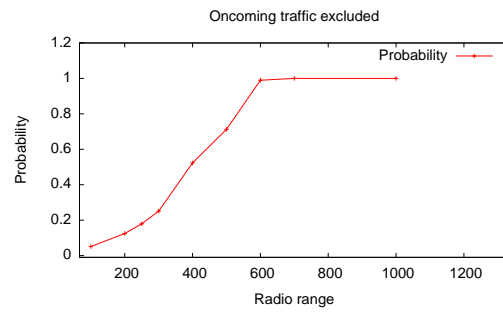


Avg. comm. partners: 149.40
Avg. active nodes: 300.80

A.12.7. Probability of being able to communicate with an arbitrary node



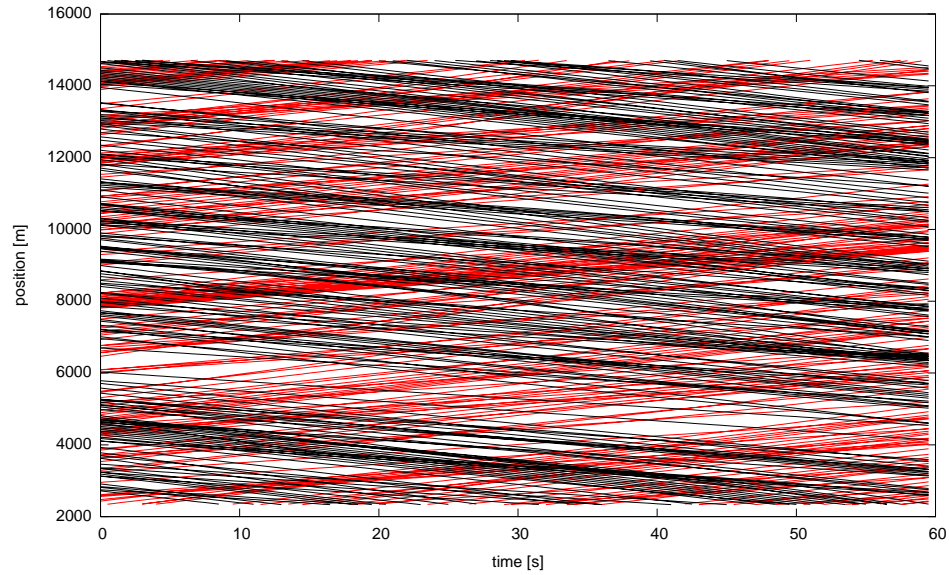
100.0 m:	0.09
200.0 m:	0.41
250.0 m:	0.62
300.0 m:	0.83
400.0 m:	1.00
500.0 m:	1.00
600.0 m:	1.00
700.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.05
200.0 m:	0.12
250.0 m:	0.18
300.0 m:	0.25
400.0 m:	0.52
500.0 m:	0.71
600.0 m:	0.99
700.0 m:	1.00
1000.0 m:	1.00

A.13. Scenario “mvmnt-hwgui-02lpd-06-06npkm-03.txt”

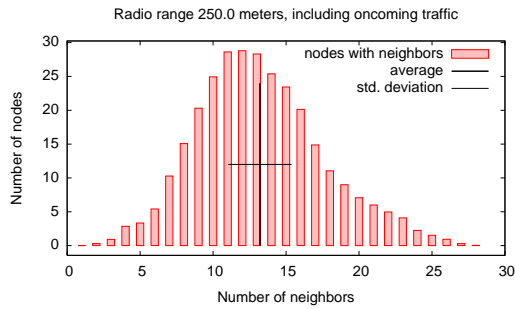
A.13.1. Trajectory plot



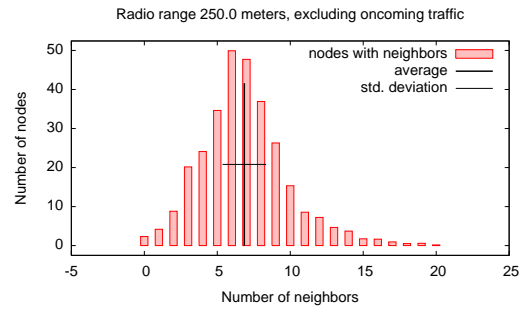
A.13.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	35.86
Number of nodes	374
Number of nodes (up)	186
Number of nodes (down)	188
Average node density [N/km]	25.38
Nodes per km and lane (up) [$N/(km \cdot lane)$]	6
Nodes per km and lane (down) [$N/(km \cdot lane)$]	6
Average number of active nodes	314.23
Average number of active nodes (up)	150.30
Average number of active nodes (down)	163.93
Number of lanes (up)	2
Length of valid area [m]	12380.70
Valid area start [m]	2332.80
Valid area end [m]	14713.50
Maximum CTR (both dirs) [m]	443.56

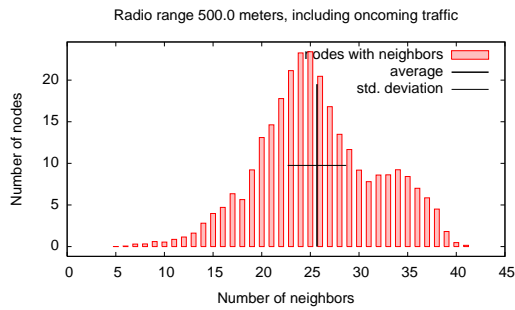
A.13.3. Neighbor histogram



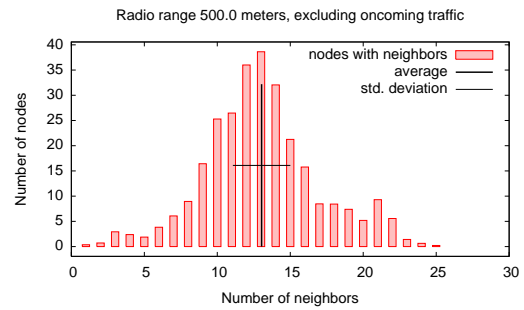
Average:	13.21
Variance:	18.88
Standard deviation:	4.35



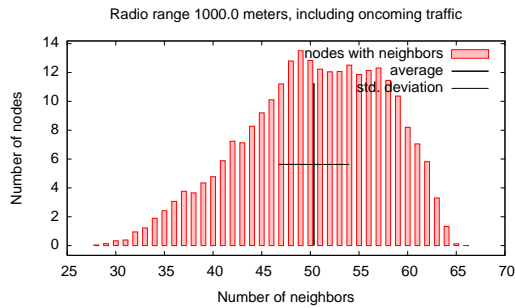
Average:	6.85
Variance:	8.90
Standard deviation:	2.98



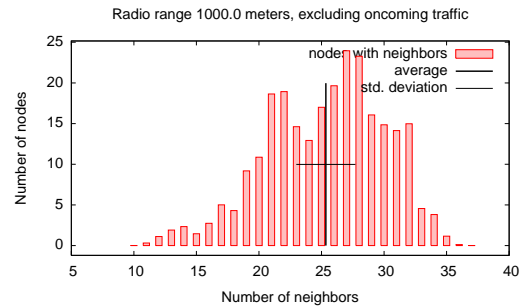
Average:	25.68
Variance:	36.27
Standard deviation:	6.02



Average:	13.04
Variance:	15.52
Standard deviation:	3.94



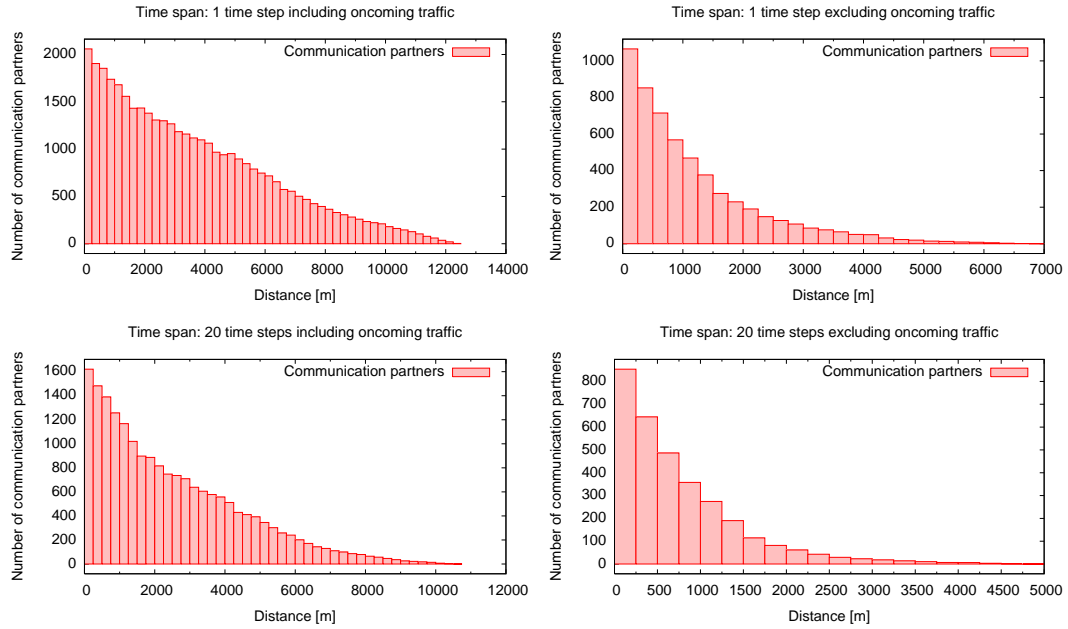
Average:	50.37
Variance:	52.55
Standard deviation:	7.25



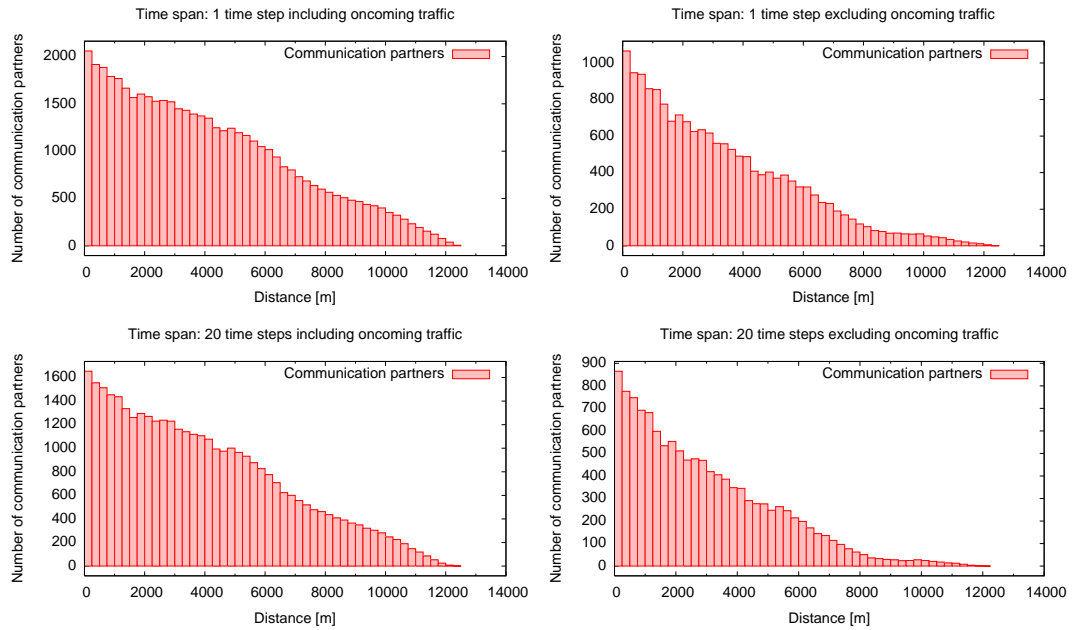
Average:	25.35
Variance:	22.30
Standard deviation:	4.72

A.13.4. Communication partner histogram

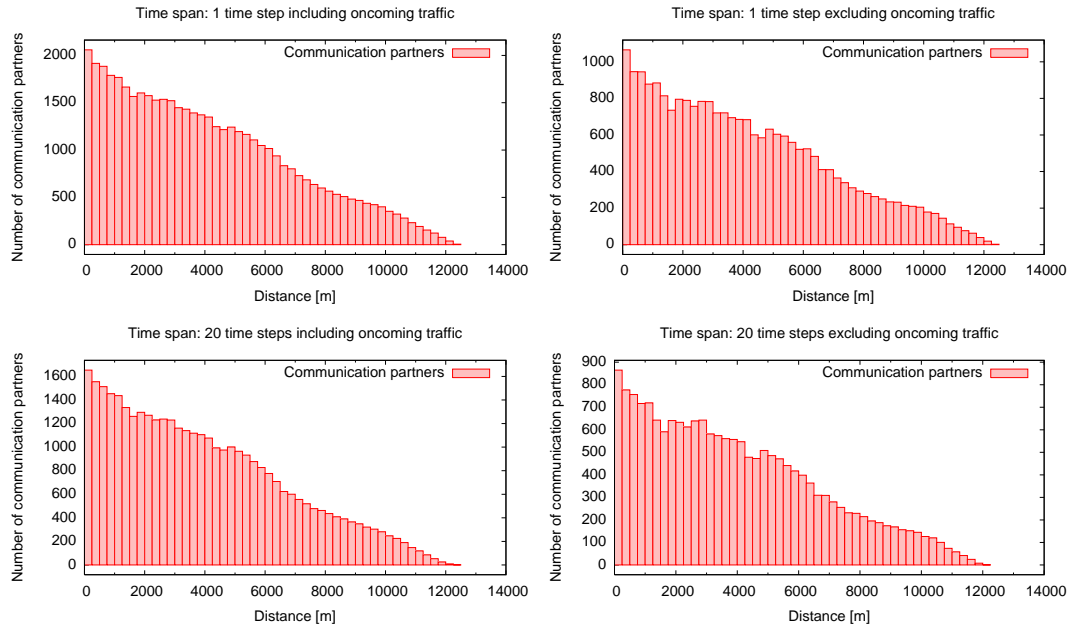
Radio range: 250.0 meters, bin size: 250.0 meters



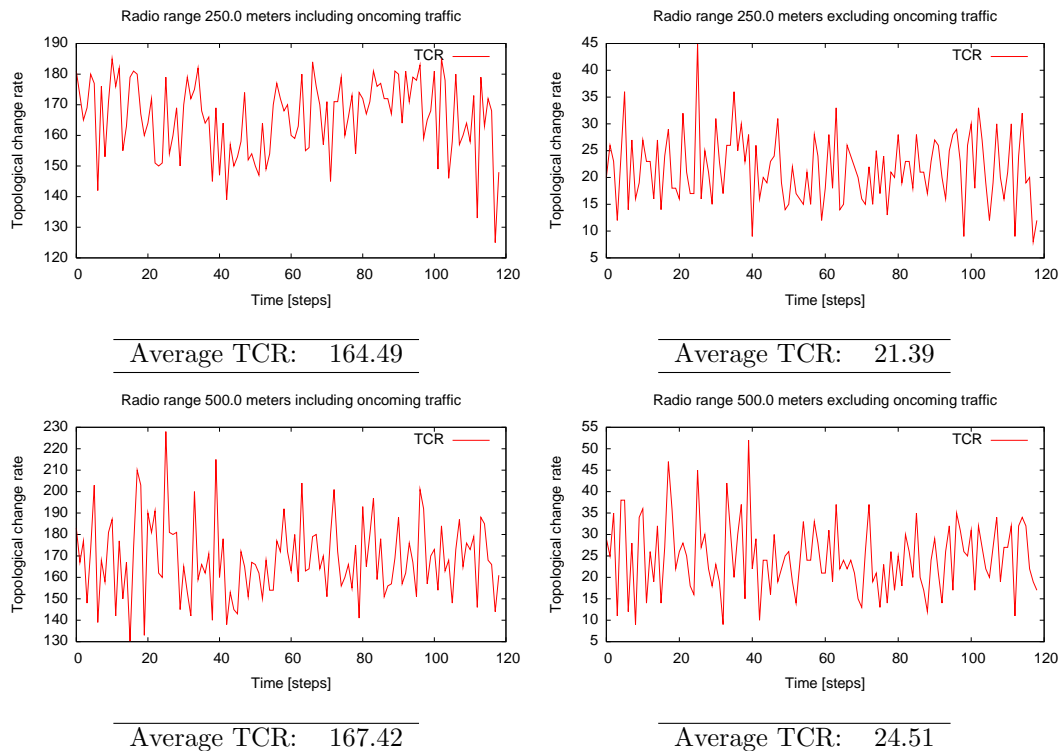
Radio range: 500.0 meters, bin size: 250.0 meters

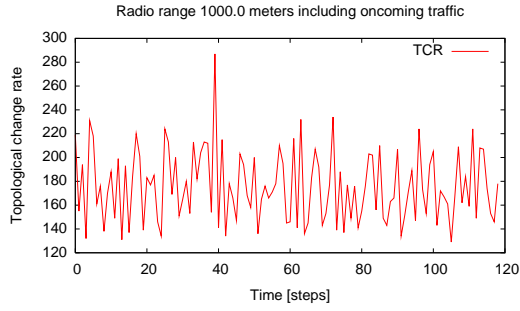


Radio range: 1000.0 meters, bin size: 250.0 meters

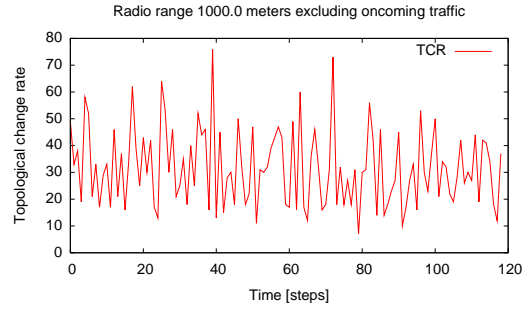


A.13.5. Topological Change Rate (TCR)



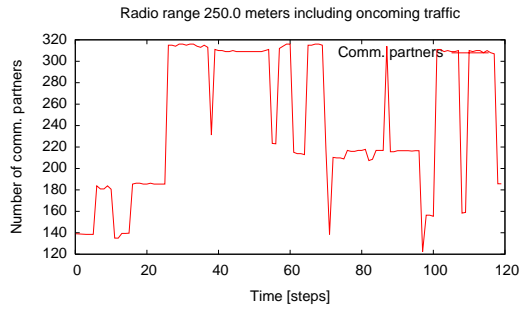


Average TCR: 174.18

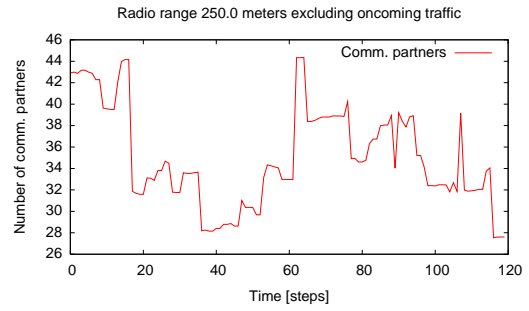


Average TCR: 31.43

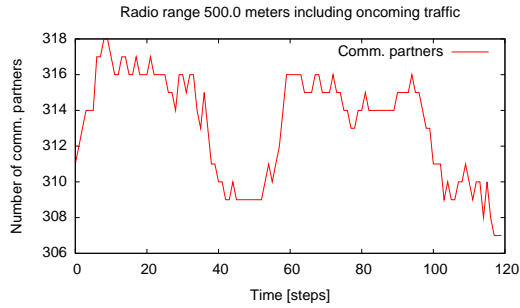
A.13.6. Total number of communication partners



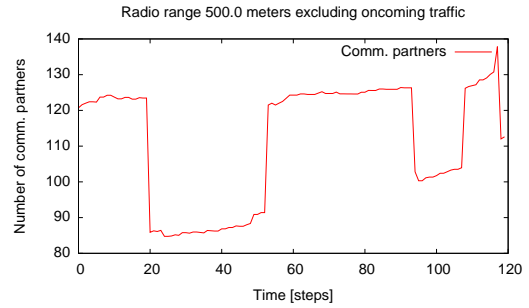
Avg. comm. partners: 242.74
Avg. active nodes: 314.23



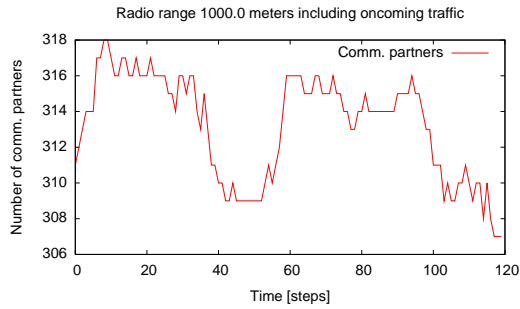
Avg. comm. partners: 35.07
Avg. active nodes: 314.23



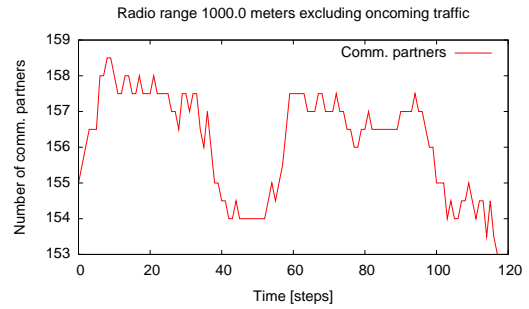
Avg. comm. partners: 313.23
Avg. active nodes: 314.23



Avg. comm. partners: 111.58
Avg. active nodes: 314.23

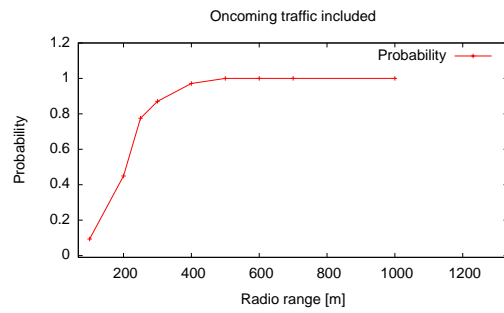


Avg. comm. partners: 313.23
Avg. active nodes: 314.23

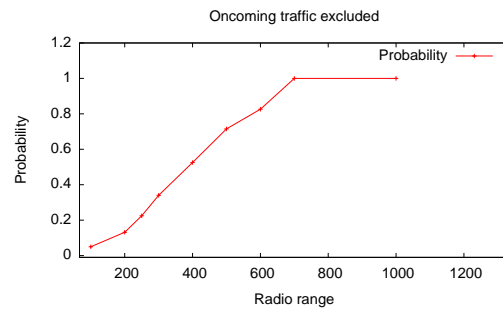


Avg. comm. partners: 156.11
Avg. active nodes: 314.23

A.13.7. Probability of being able to communicate with an arbitrary node



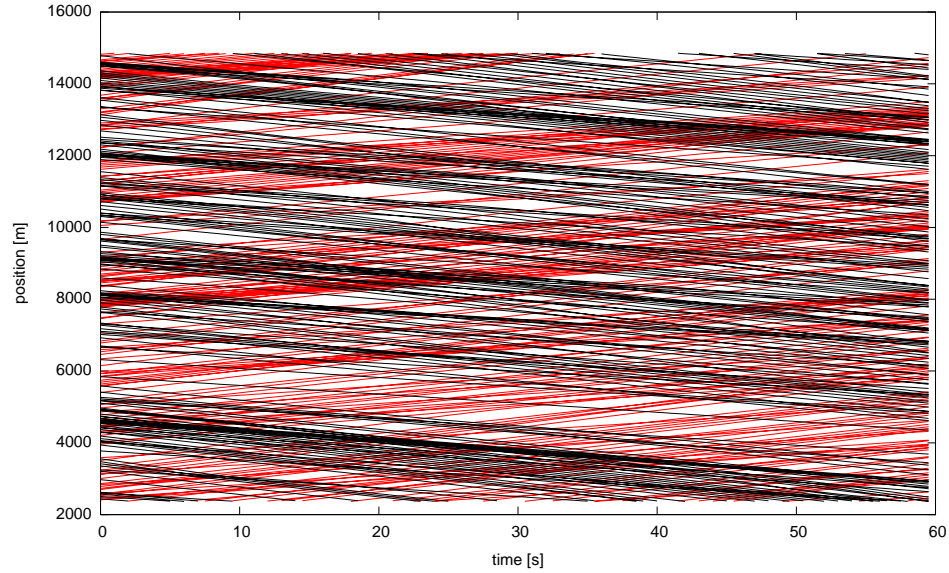
100.0 m:	0.09
200.0 m:	0.45
250.0 m:	0.77
300.0 m:	0.87
400.0 m:	0.97
500.0 m:	1.00
600.0 m:	1.00
700.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.05
200.0 m:	0.13
250.0 m:	0.22
300.0 m:	0.34
400.0 m:	0.53
500.0 m:	0.71
600.0 m:	0.83
700.0 m:	1.00
1000.0 m:	1.00

A.14. Scenario “mvmnt-hwgui-02lpd-06-06npkm-04.txt”

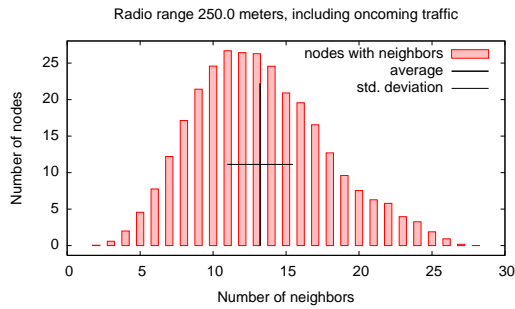
A.14.1. Trajectory plot



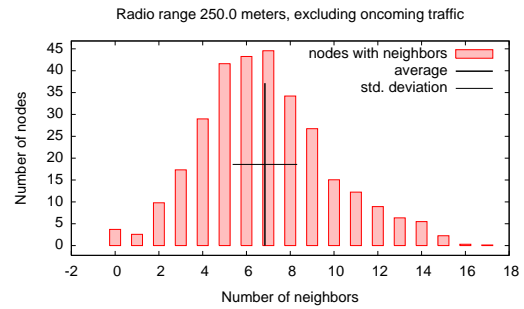
A.14.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	35.60
Number of nodes	379
Number of nodes (up)	188
Number of nodes (down)	191
Average node density [N/km]	25.38
Nodes per km and lane (up) [$N/(km \cdot lane)$]	6
Nodes per km and lane (down) [$N/(km \cdot lane)$]	6
Average number of active nodes	316.82
Average number of active nodes (up)	152.92
Average number of active nodes (down)	163.90
Number of lanes (up)	2
Length of valid area [m]	12484.30
Valid area start [m]	2368.40
Valid area end [m]	14852.70
Maximum CTR (both dirs) [m]	432.30

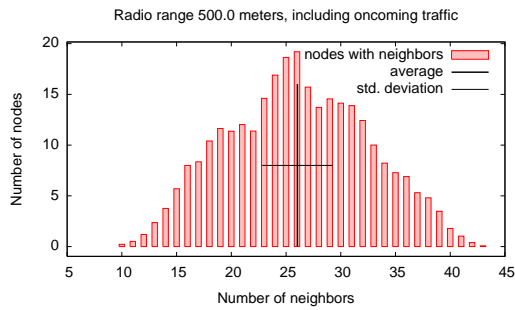
A.14.3. Neighbor histogram



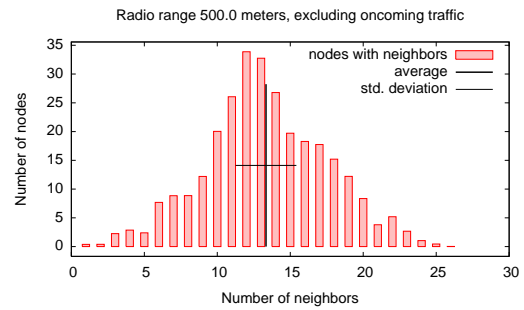
Average:	13.22
Variance:	20.31
Standard deviation:	4.51



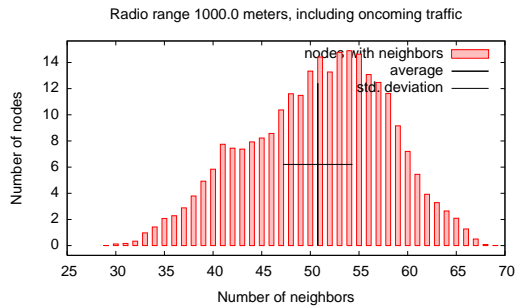
Average:	6.84
Variance:	8.69
Standard deviation:	2.95



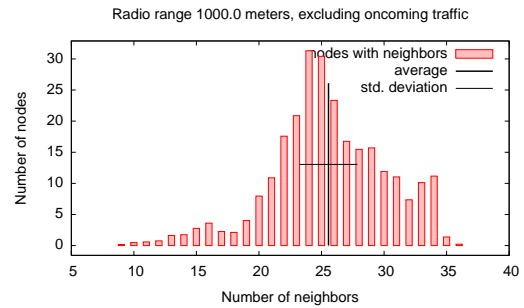
Average:	26.04
Variance:	41.41
Standard deviation:	6.44



Average:	13.34
Variance:	17.31
Standard deviation:	4.16



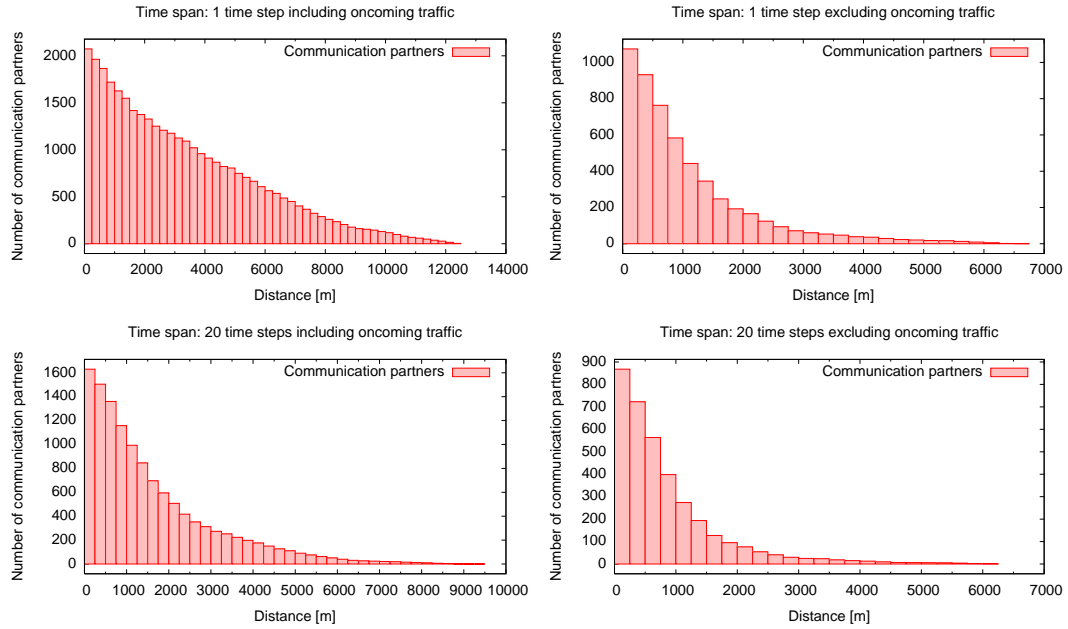
Average:	50.76
Variance:	51.02
Standard deviation:	7.14



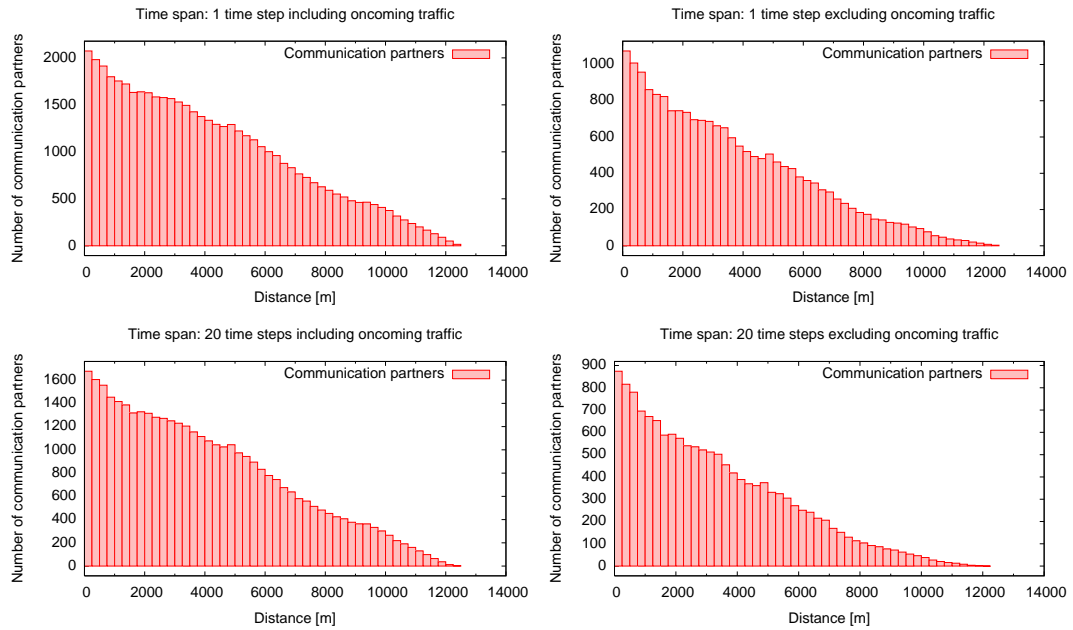
Average:	25.56
Variance:	21.35
Standard deviation:	4.62

A.14.4. Communication partner histogram

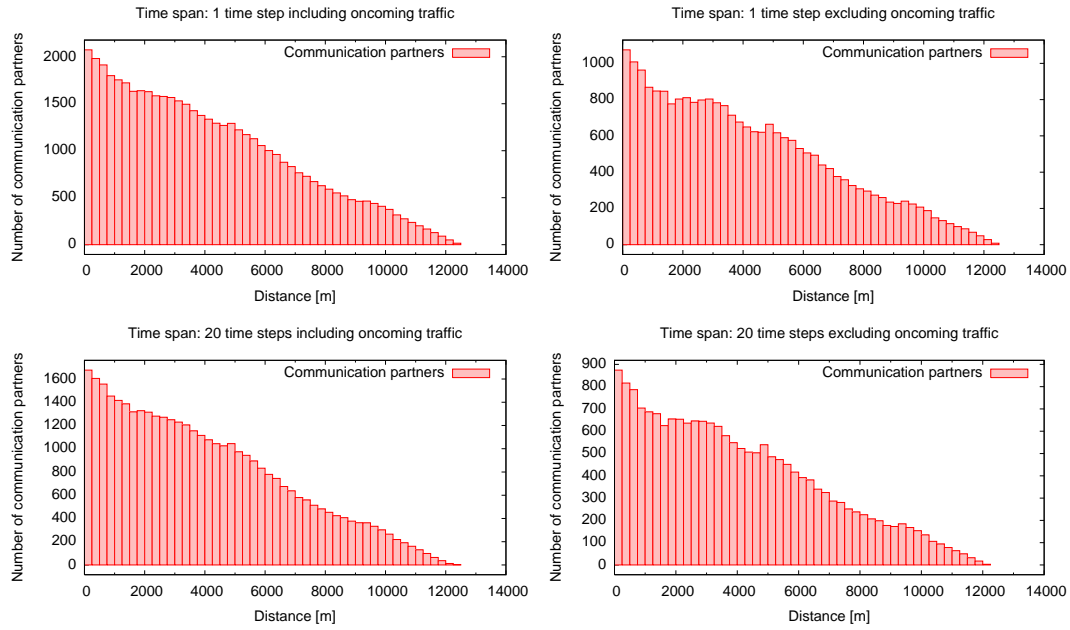
Radio range: 250.0 meters, bin size: 250.0 meters



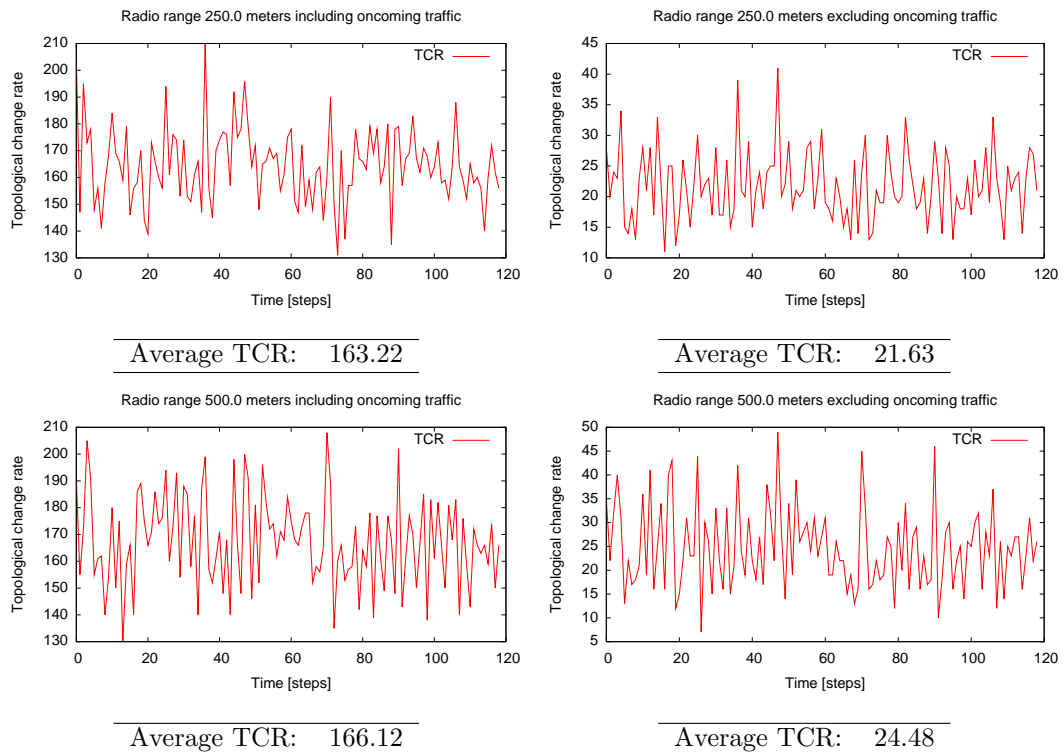
Radio range: 500.0 meters, bin size: 250.0 meters

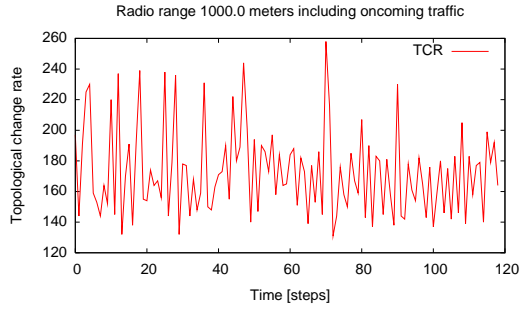


Radio range: 1000.0 meters, bin size: 250.0 meters

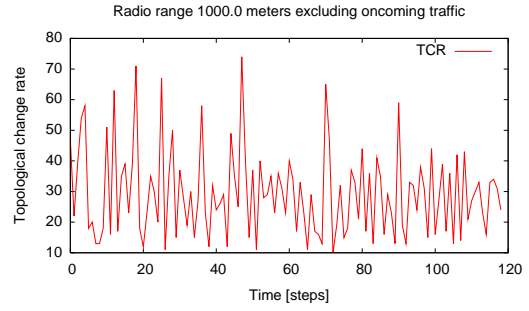


A.14.5. Topological Change Rate (TCR)



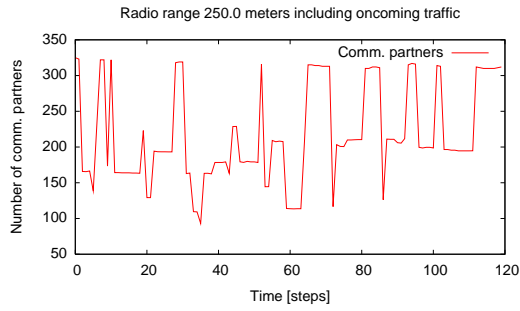


Average TCR: 171.28

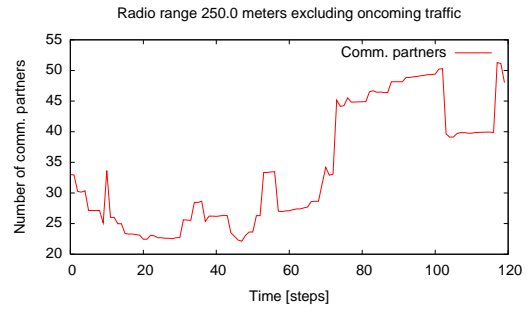


Average TCR: 29.16

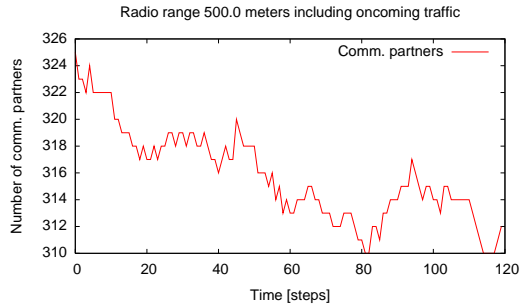
A.14.6. Total number of communication partners



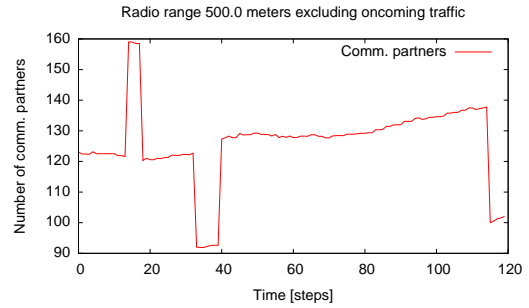
Avg. comm. partners: 216.95
Avg. active nodes: 316.82



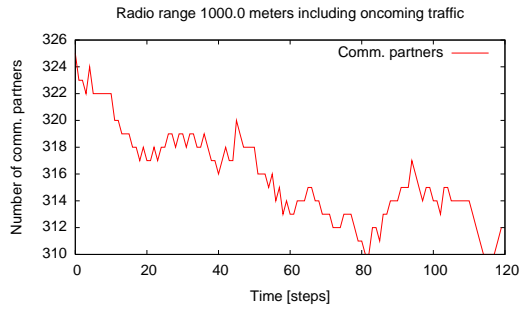
Avg. comm. partners: 33.93
Avg. active nodes: 316.82



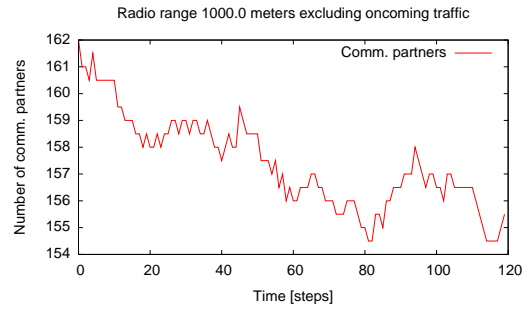
Avg. comm. partners: 315.82
Avg. active nodes: 316.82



Avg. comm. partners: 126.22
Avg. active nodes: 316.82

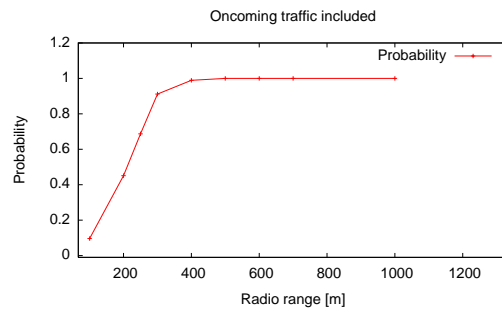


Avg. comm. partners: 315.82
Avg. active nodes: 316.82

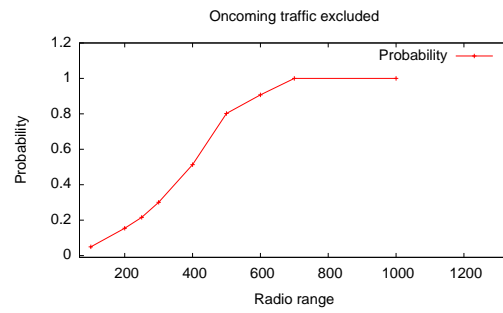


Avg. comm. partners: 157.41
Avg. active nodes: 316.82

A.14.7. Probability of being able to communicate with an arbitrary node



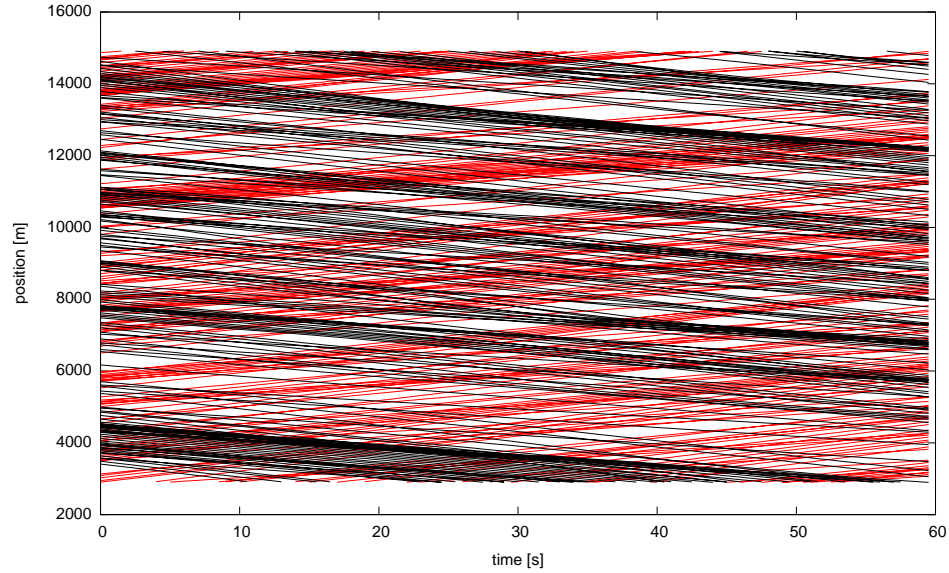
100.0 m:	0.10
200.0 m:	0.45
250.0 m:	0.69
300.0 m:	0.91
400.0 m:	0.99
500.0 m:	1.00
600.0 m:	1.00
700.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.05
200.0 m:	0.15
250.0 m:	0.22
300.0 m:	0.30
400.0 m:	0.51
500.0 m:	0.80
600.0 m:	0.91
700.0 m:	1.00
1000.0 m:	1.00

A.15. Scenario “mvmnt-hwgui-02lpd-06-06npkm-05.txt”

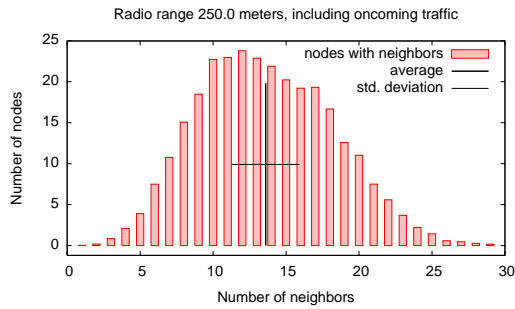
A.15.1. Trajectory plot



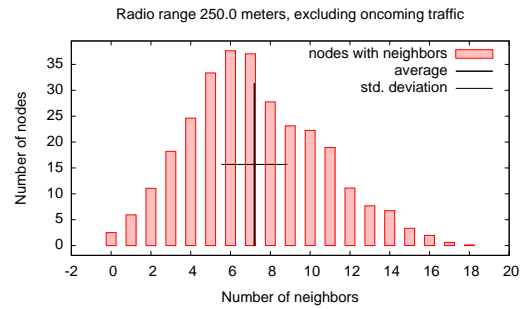
A.15.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	35.22
Number of nodes	372
Number of nodes (up)	187
Number of nodes (down)	185
Average node density [N/km]	25.75
Nodes per km and lane (up) [$N/(km \cdot lane)$]	6
Nodes per km and lane (down) [$N/(km \cdot lane)$]	6
Average number of active nodes	309.46
Average number of active nodes (up)	151.83
Average number of active nodes (down)	157.62
Number of lanes (up)	2
Length of valid area [m]	12017.60
Valid area start [m]	2898.70
Valid area end [m]	14916.30
Maximum CTR (both dirs) [m]	419.61

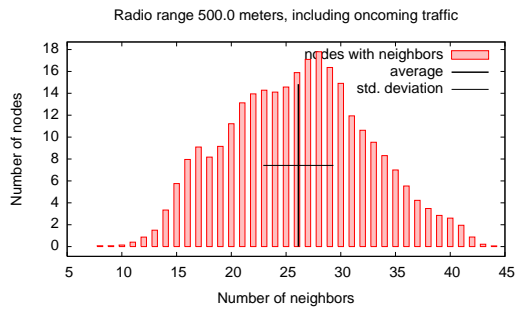
A.15.3. Neighbor histogram



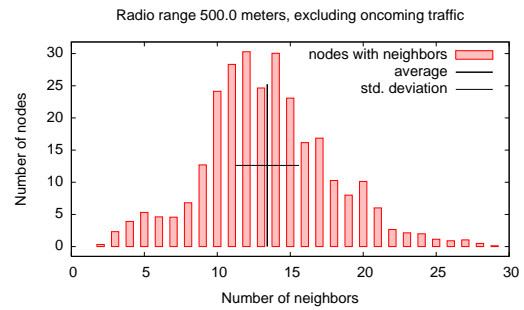
Average:	13.61
Variance:	21.24
Standard deviation:	4.61



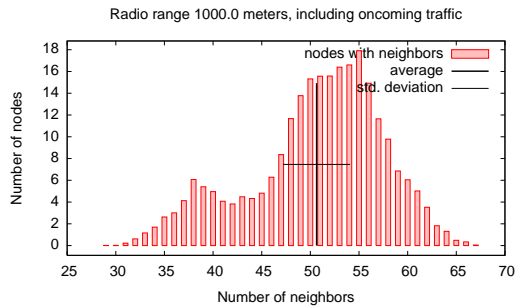
Average:	7.20
Variance:	11.04
Standard deviation:	3.32



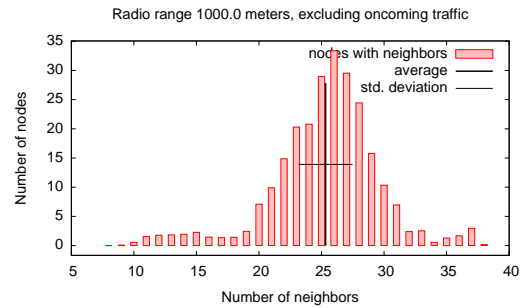
Average:	26.12
Variance:	41.05
Standard deviation:	6.41



Average:	13.43
Variance:	19.03
Standard deviation:	4.36



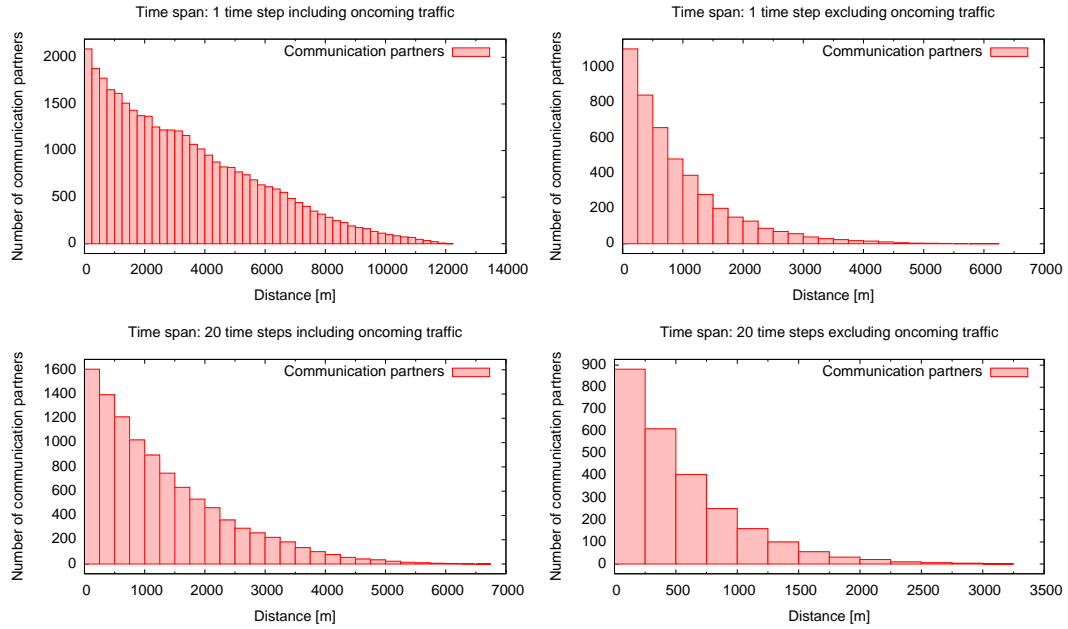
Average:	50.64
Variance:	47.49
Standard deviation:	6.89



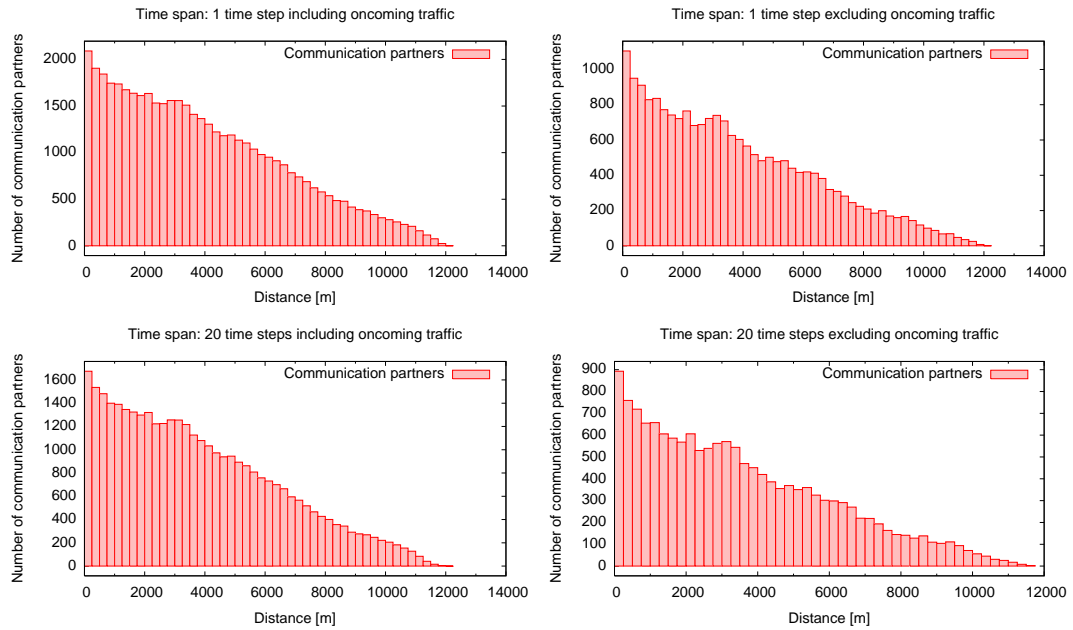
Average:	25.33
Variance:	18.50
Standard deviation:	4.30

A.15.4. Communication partner histogram

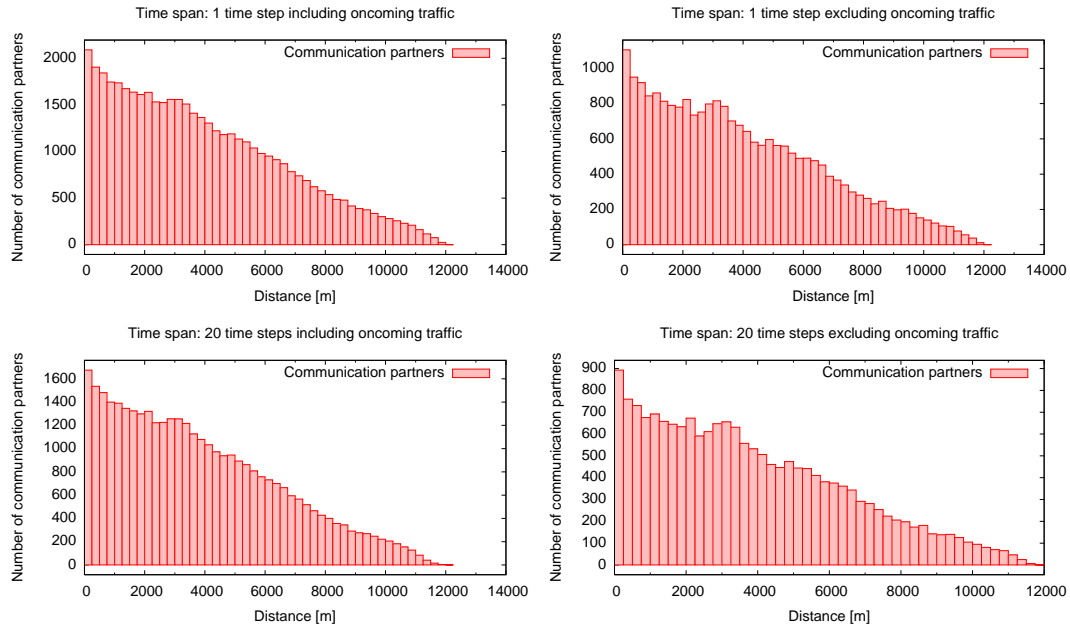
Radio range: 250.0 meters, bin size: 250.0 meters



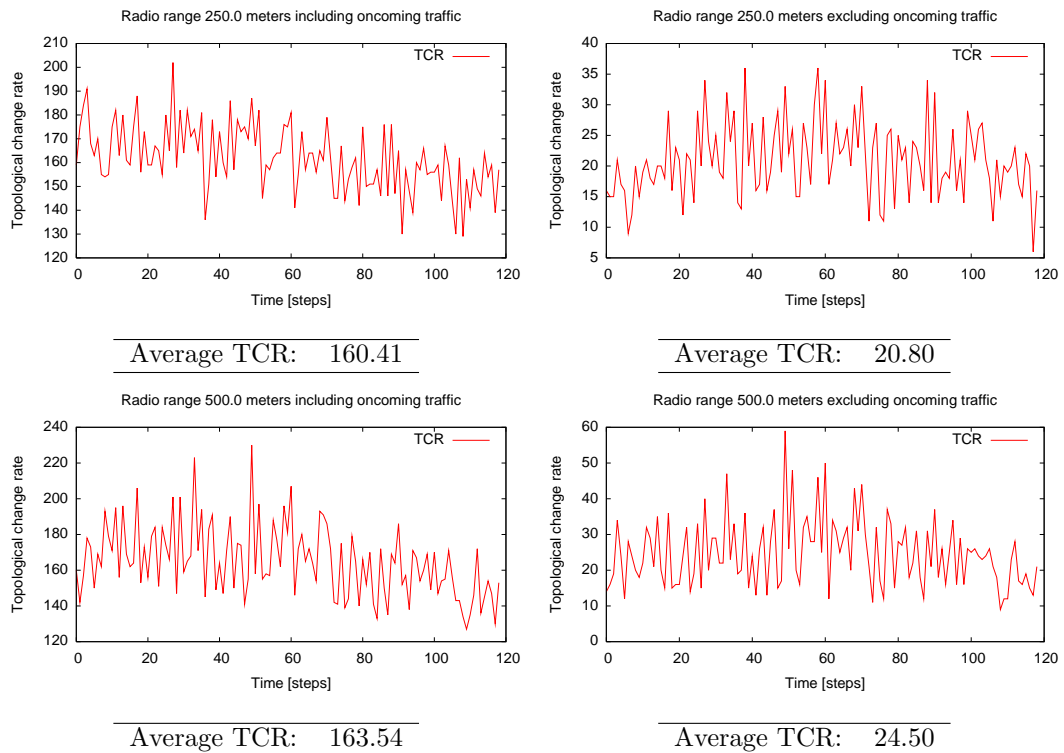
Radio range: 500.0 meters, bin size: 250.0 meters

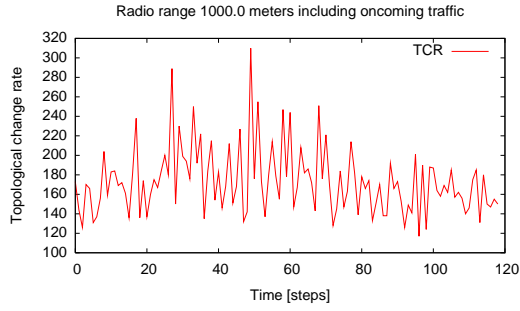


Radio range: 1000.0 meters, bin size: 250.0 meters

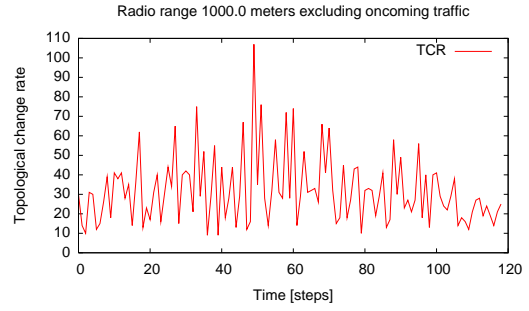


A.15.5. Topological Change Rate (TCR)



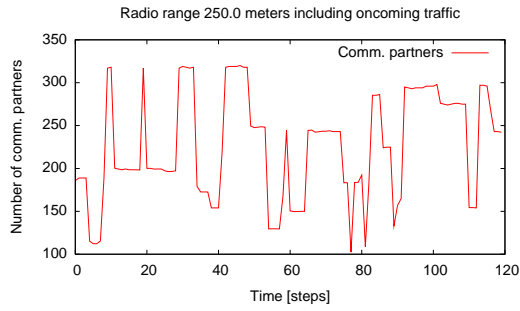


Average TCR: 171.84

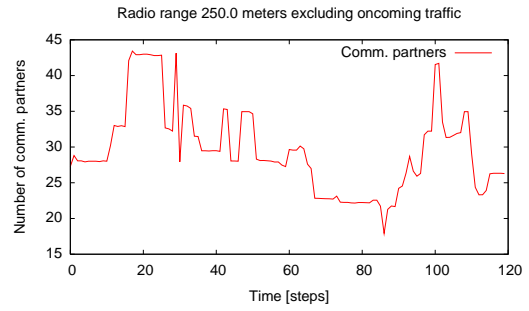


Average TCR: 31.68

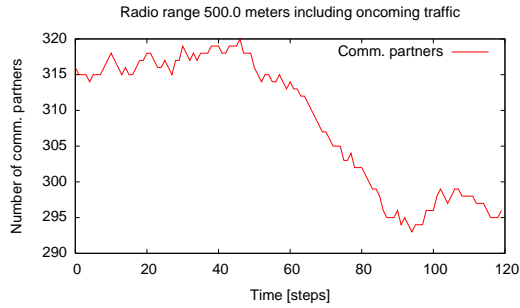
A.15.6. Total number of communication partners



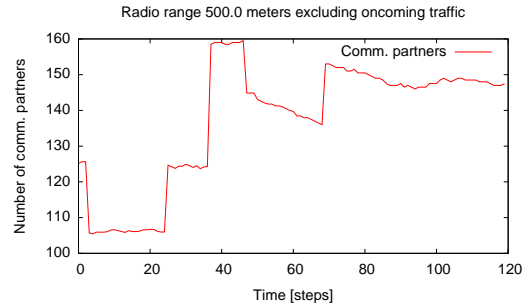
Avg. comm. partners: 225.72
Avg. active nodes: 309.46



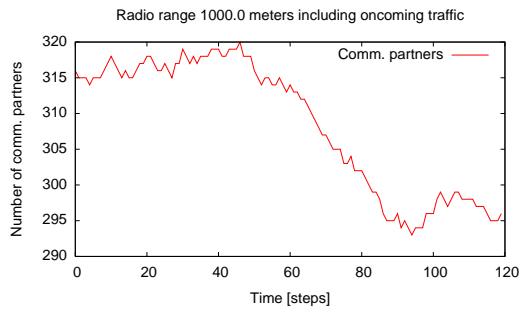
Avg. comm. partners: 29.59
Avg. active nodes: 309.46



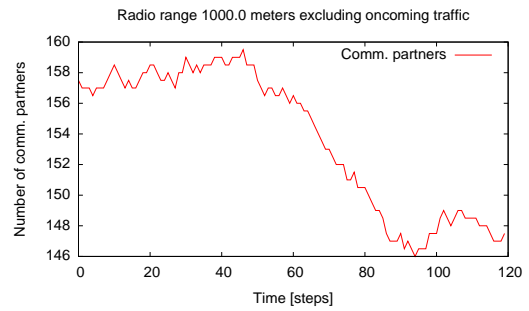
Avg. comm. partners: 308.46
Avg. active nodes: 309.46



Avg. comm. partners: 137.22
Avg. active nodes: 309.46

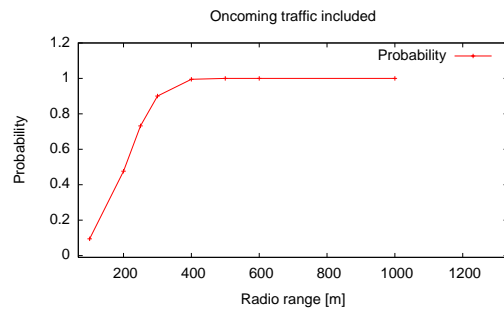


Avg. comm. partners: 308.46
Avg. active nodes: 309.46

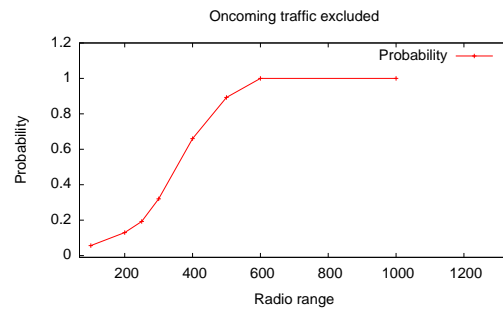


Avg. comm. partners: 153.73
Avg. active nodes: 309.46

A.15.7. Probability of being able to communicate with an arbitrary node



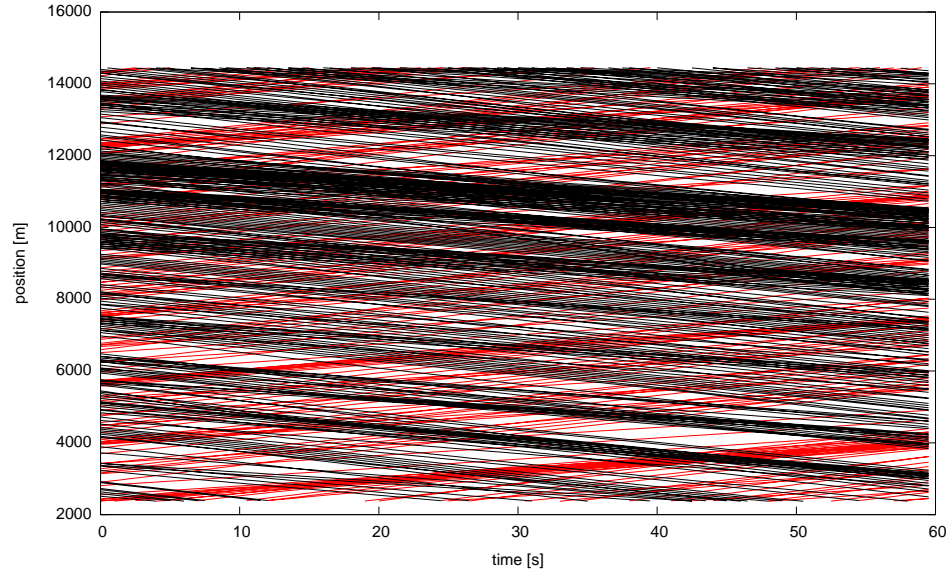
100.0 m:	0.09
200.0 m:	0.48
250.0 m:	0.73
300.0 m:	0.90
400.0 m:	0.99
500.0 m:	1.00
600.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.06
200.0 m:	0.13
250.0 m:	0.19
300.0 m:	0.32
400.0 m:	0.66
500.0 m:	0.89
600.0 m:	1.00
1000.0 m:	1.00

A.16. Scenario “mvmnt-hwgui-02lpd-06-11npkm-01.txt”

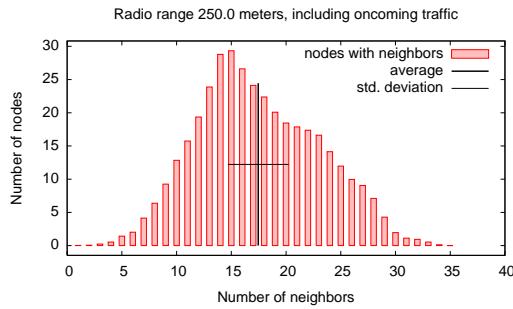
A.16.1. Trajectory plot



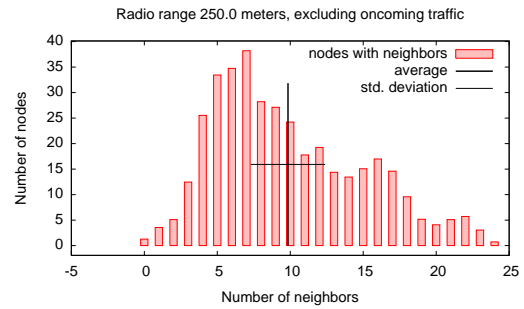
A.16.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	34.16
Number of nodes	459
Number of nodes (up)	175
Number of nodes (down)	284
Average node density [N/km]	32.77
Nodes per km and lane (up) [$N/(km \cdot lane)$]	6
Nodes per km and lane (down) [$N/(km \cdot lane)$]	11
Average number of active nodes	395.85
Average number of active nodes (up)	146.57
Average number of active nodes (down)	249.28
Number of lanes (up)	2
Length of valid area [m]	12080.40
Valid area start [m]	2372.60
Valid area end [m]	14453.00
Maximum CTR (both dirs) [m]	332.20

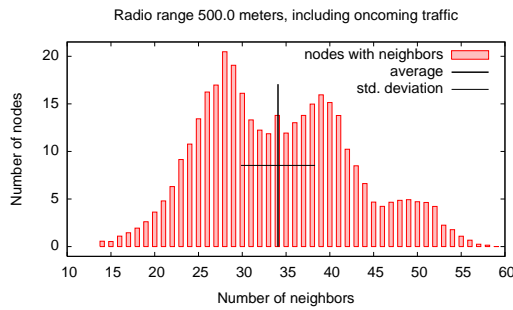
A.16.3. Neighbor histogram



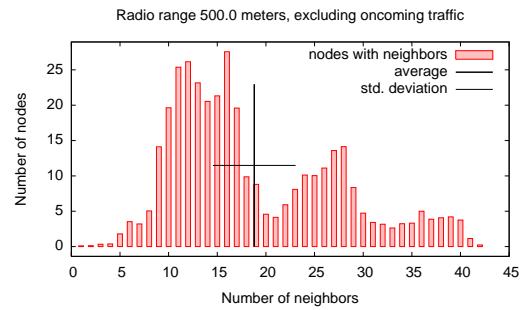
Average:	17.46
Variance:	30.87
Standard deviation:	5.56



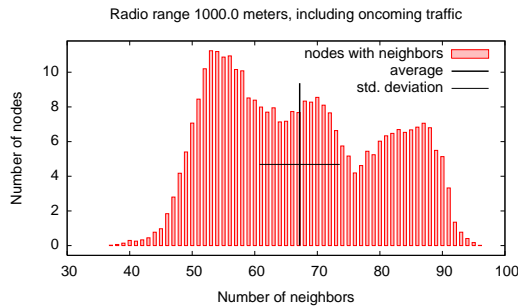
Average:	9.84
Variance:	25.93
Standard deviation:	5.09



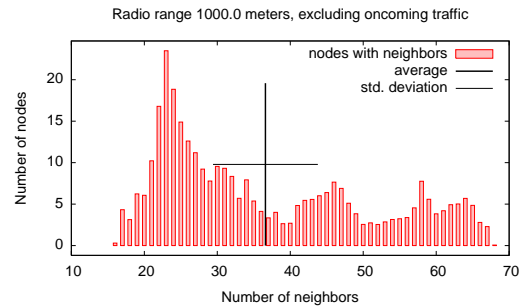
Average:	34.08
Variance:	71.69
Standard deviation:	8.47



Average:	18.80
Variance:	72.31
Standard deviation:	8.50



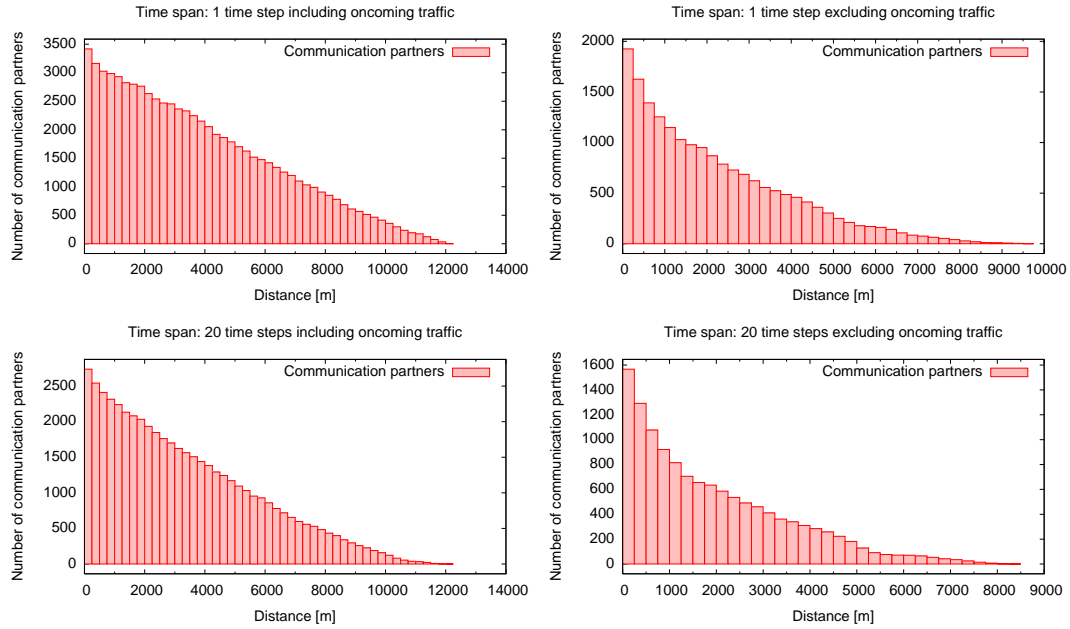
Average:	67.18
Variance:	164.04
Standard deviation:	12.81



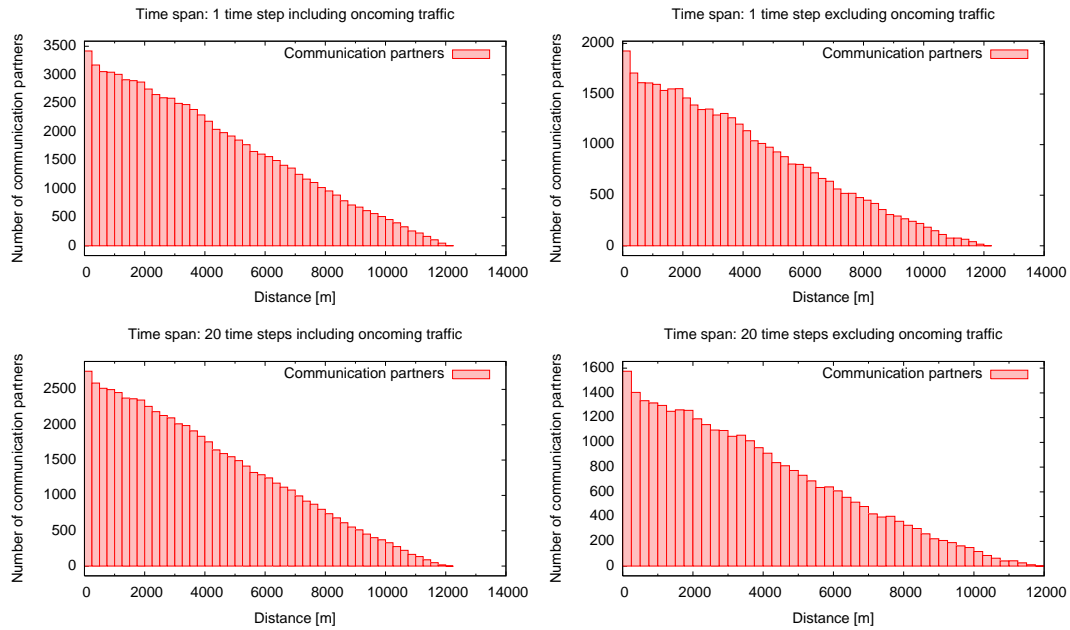
Average:	36.60
Variance:	206.44
Standard deviation:	14.37

A.16.4. Communication partner histogram

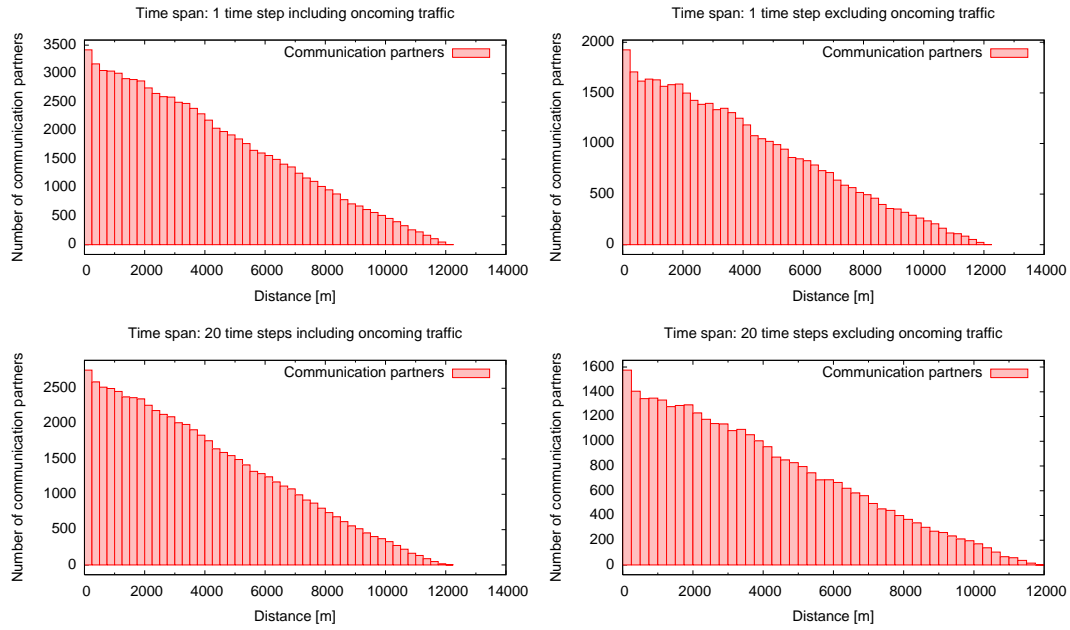
Radio range: 250.0 meters, bin size: 250.0 meters



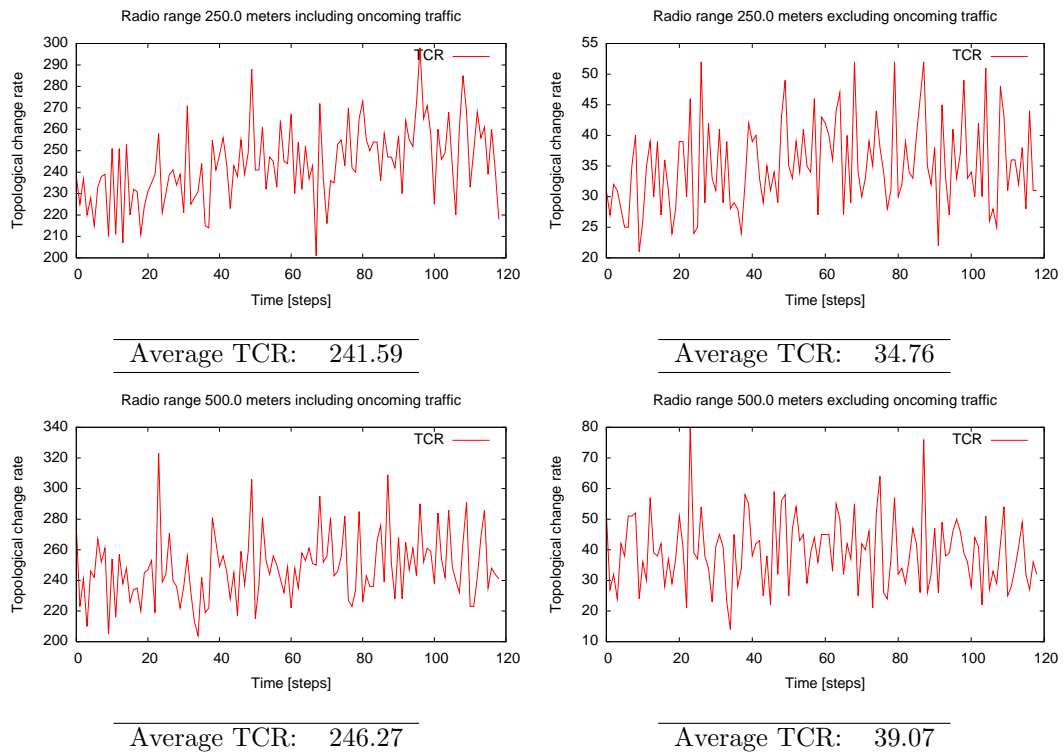
Radio range: 500.0 meters, bin size: 250.0 meters

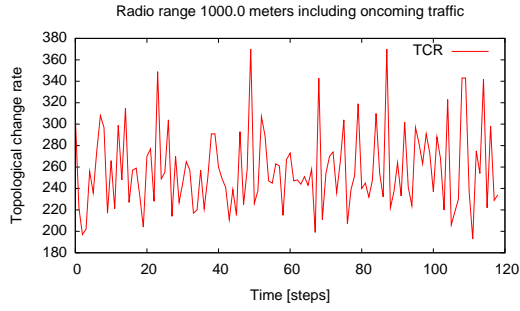


Radio range: 1000.0 meters, bin size: 250.0 meters

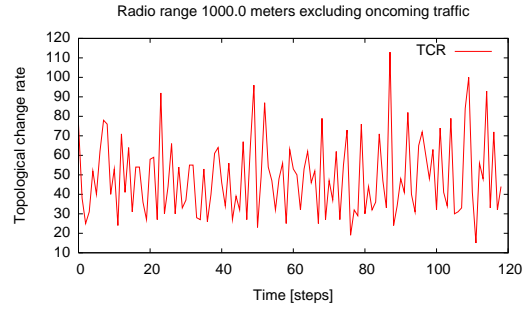


A.16.5. Topological Change Rate (TCR)



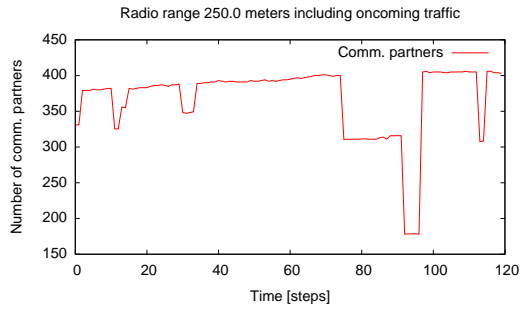


Average TCR: 255.66

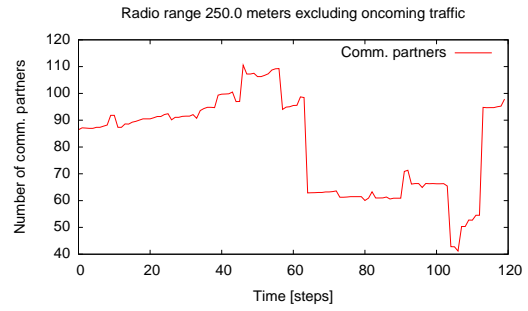


Average TCR: 48.39

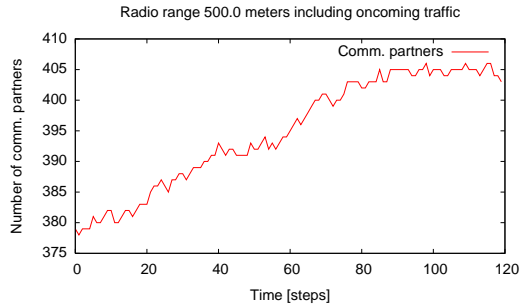
A.16.6. Total number of communication partners



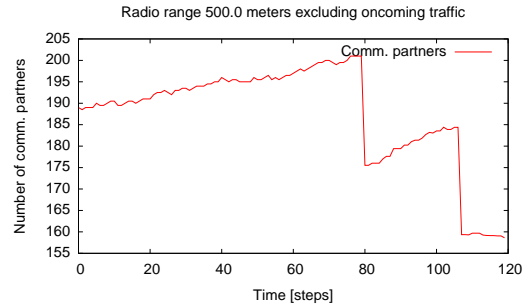
Avg. comm. partners: 367.46
Avg. active nodes: 395.85



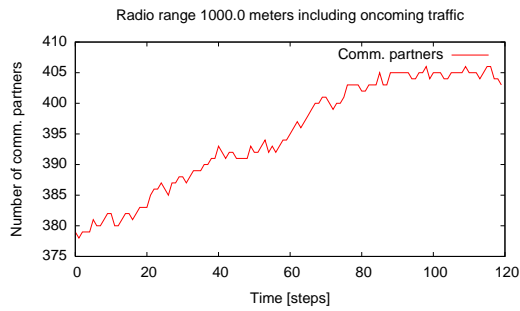
Avg. comm. partners: 81.02
Avg. active nodes: 395.85



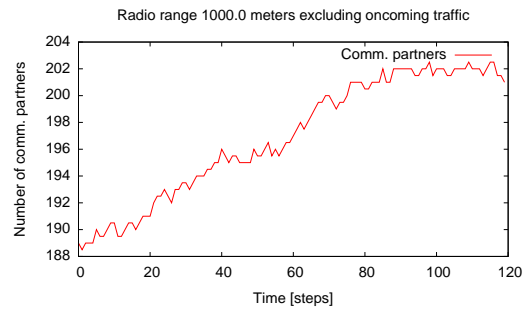
Avg. comm. partners: 394.85
Avg. active nodes: 395.85



Avg. comm. partners: 187.55
Avg. active nodes: 395.85

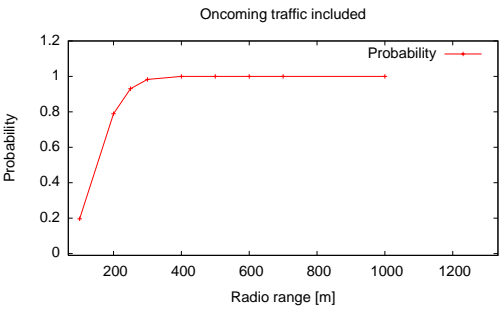


Avg. comm. partners: 394.85
Avg. active nodes: 395.85

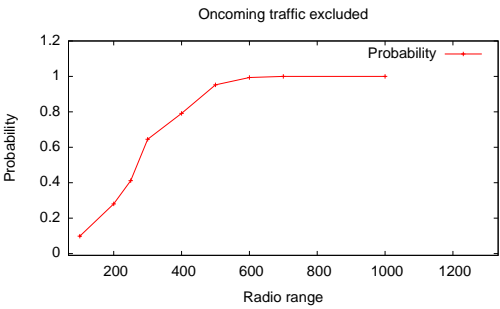


Avg. comm. partners: 196.93
Avg. active nodes: 395.85

A.16.7. Probability of being able to communicate with an arbitrary node



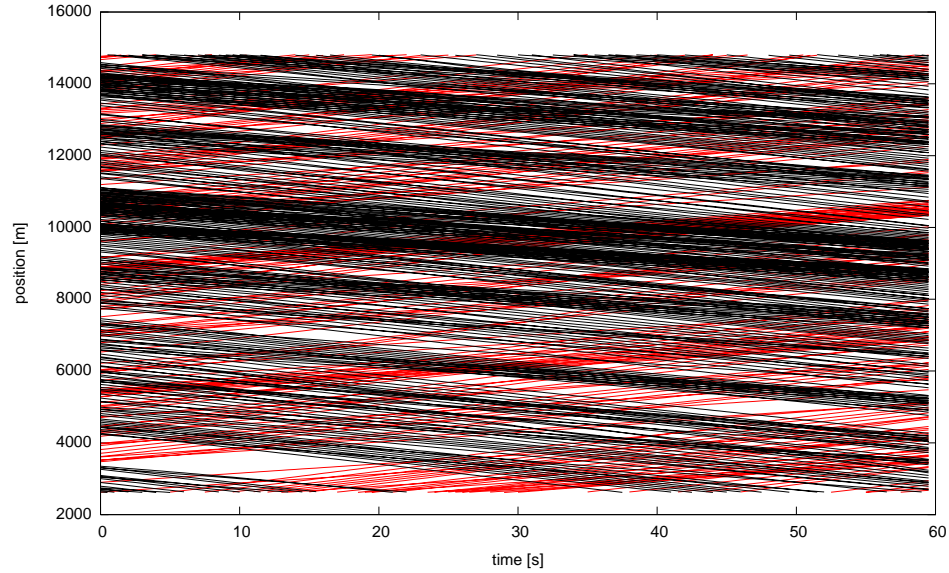
100.0 m:	0.20
200.0 m:	0.79
250.0 m:	0.93
300.0 m:	0.98
400.0 m:	1.00
500.0 m:	1.00
600.0 m:	1.00
700.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.10
200.0 m:	0.28
250.0 m:	0.41
300.0 m:	0.65
400.0 m:	0.79
500.0 m:	0.95
600.0 m:	0.99
700.0 m:	1.00
1000.0 m:	1.00

A.17. Scenario “mvmnt-hwgui-02lpd-06-11npkm-02.txt”

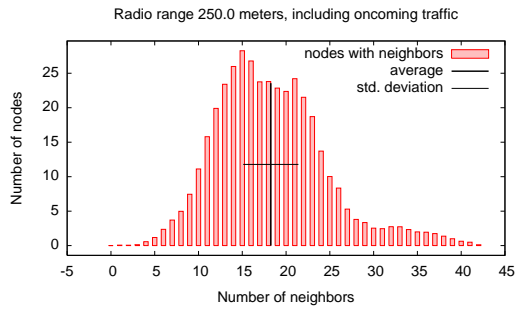
A.17.1. Trajectory plot



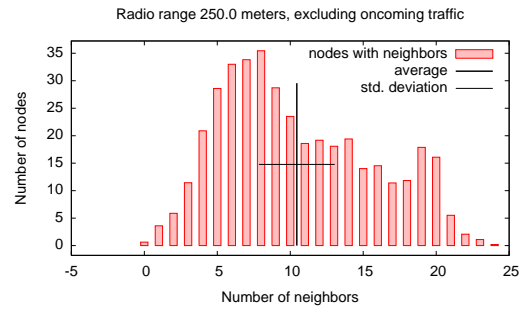
A.17.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	34.16
Number of nodes	479
Number of nodes (up)	178
Number of nodes (down)	301
Average node density [N/km]	33.61
Nodes per km and lane (up) [$N/(km \cdot lane)$]	6
Nodes per km and lane (down) [$N/(km \cdot lane)$]	11
Average number of active nodes	409.94
Average number of active nodes (up)	146.45
Average number of active nodes (down)	263.49
Number of lanes (up)	2
Length of valid area [m]	12196.50
Valid area start [m]	2616.80
Valid area end [m]	14813.30
Maximum CTR (both dirs) [m]	614.20

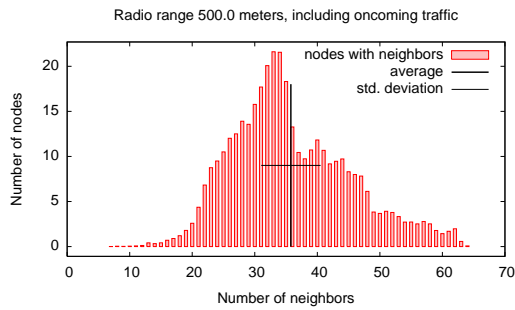
A.17.3. Neighbor histogram



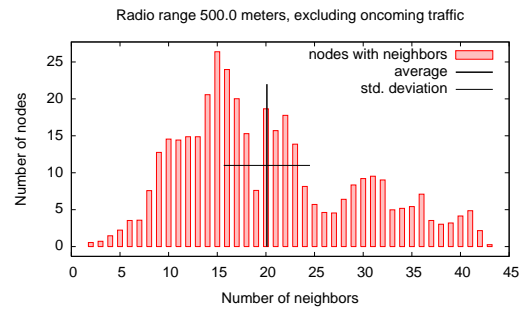
Average:	18.26
Variance:	39.66
Standard deviation:	6.30



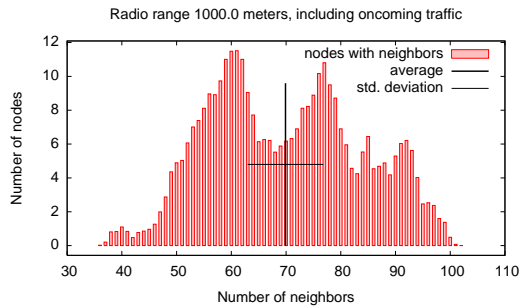
Average:	10.45
Variance:	27.03
Standard deviation:	5.20



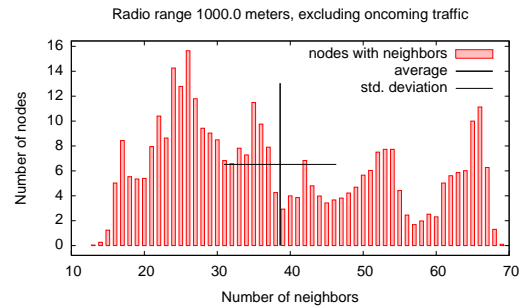
Average:	35.77
Variance:	90.07
Standard deviation:	9.49



Average:	20.10
Variance:	78.61
Standard deviation:	8.87



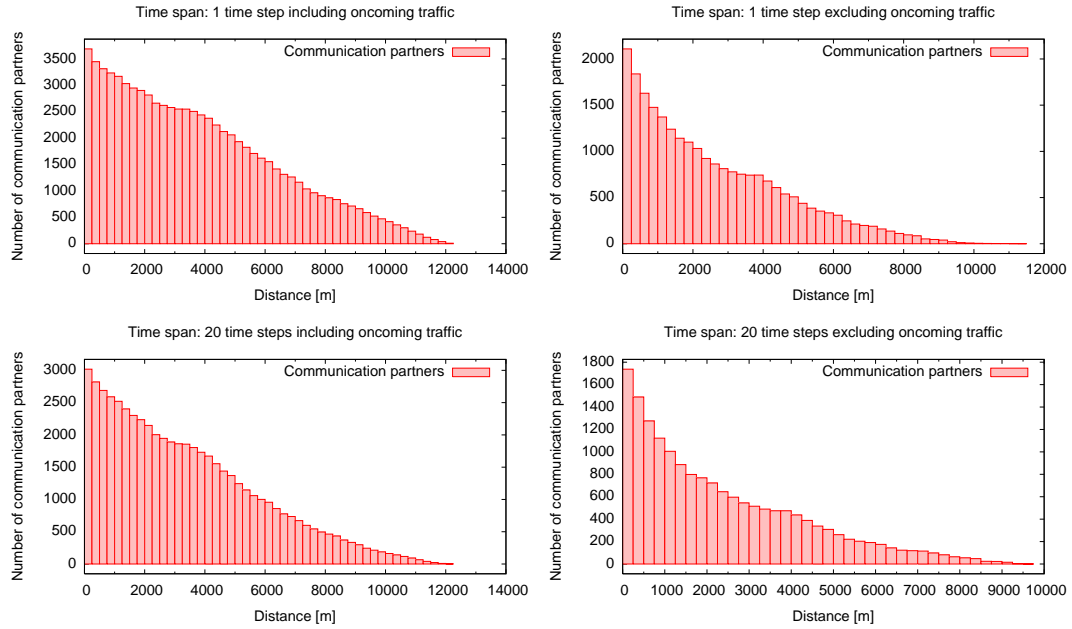
Average:	69.89
Variance:	191.07
Standard deviation:	13.82



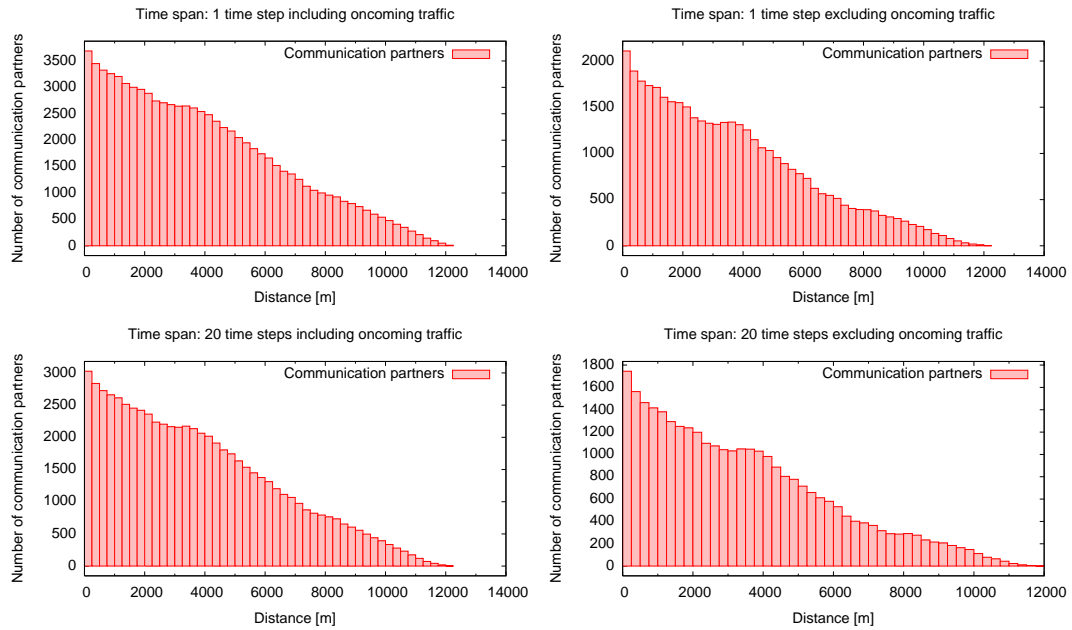
Average:	38.62
Variance:	236.51
Standard deviation:	15.38

A.17.4. Communication partner histogram

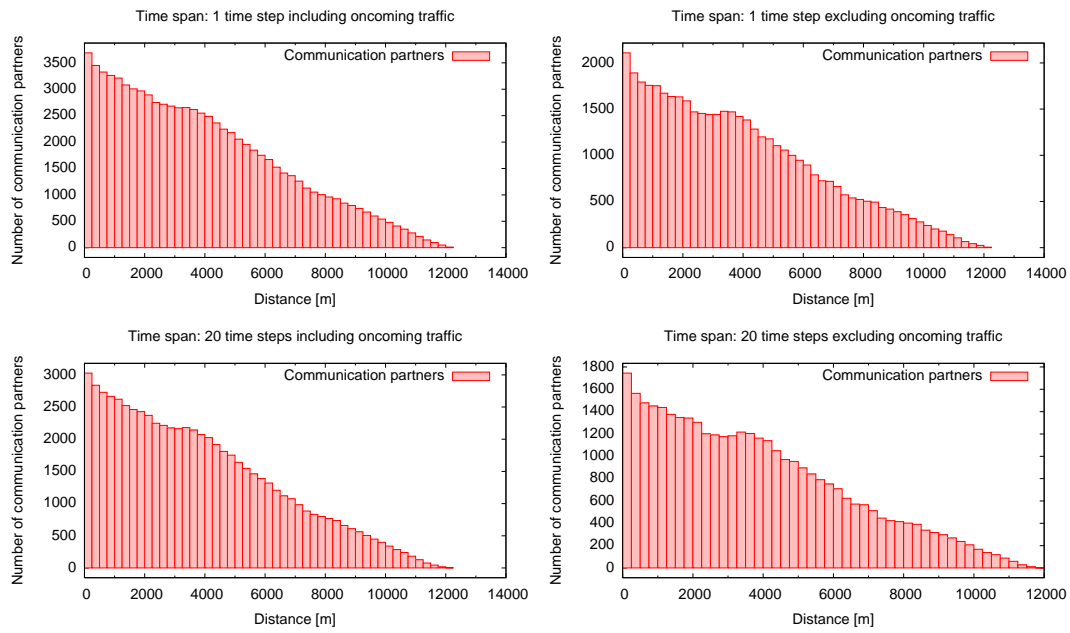
Radio range: 250.0 meters, bin size: 250.0 meters



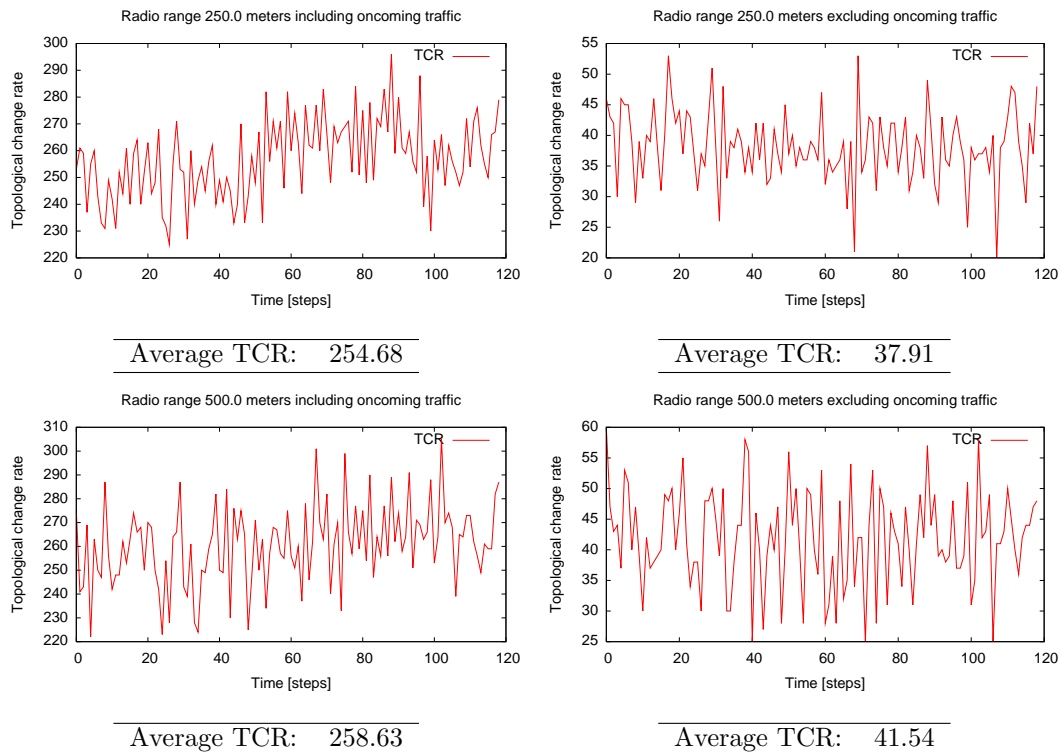
Radio range: 500.0 meters, bin size: 250.0 meters

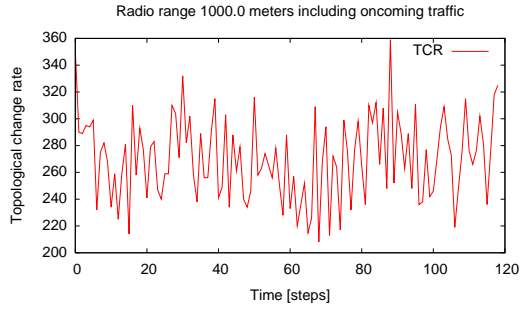


Radio range: 1000.0 meters, bin size: 250.0 meters

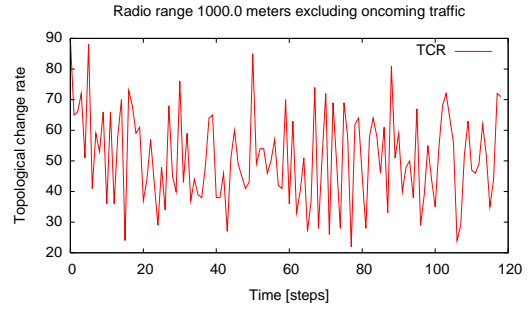


A.17.5. Topological Change Rate (TCR)



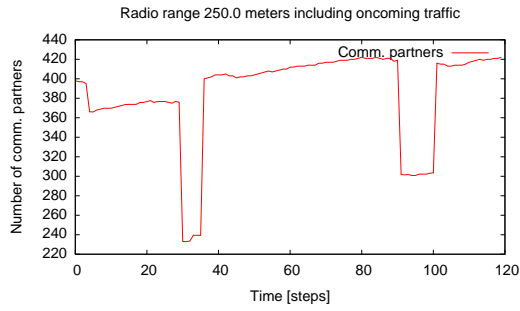


Average TCR: 267.96

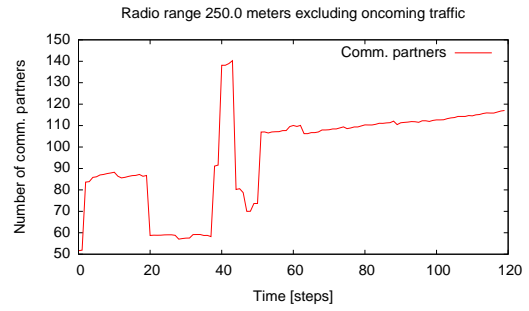


Average TCR: 50.78

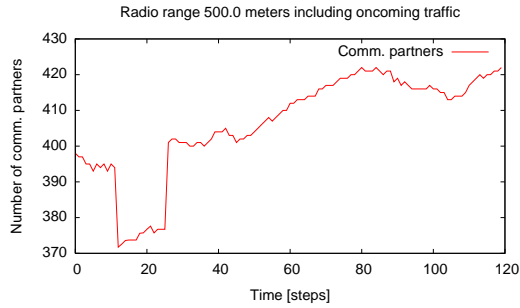
A.17.6. Total number of communication partners



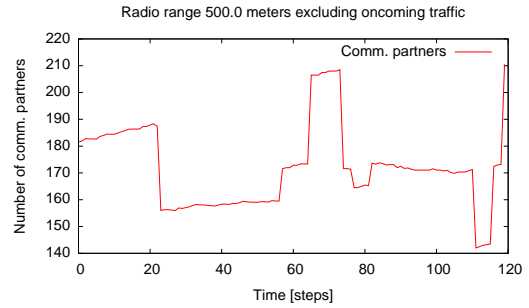
Avg. comm. partners: 385.97
Avg. active nodes: 409.94



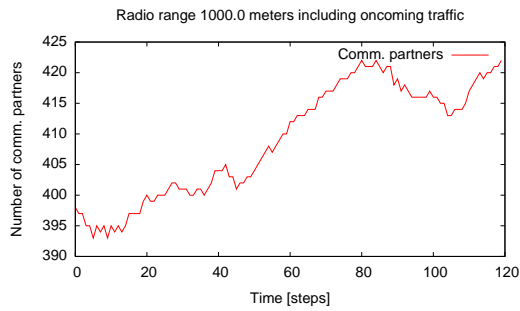
Avg. comm. partners: 96.95
Avg. active nodes: 409.94



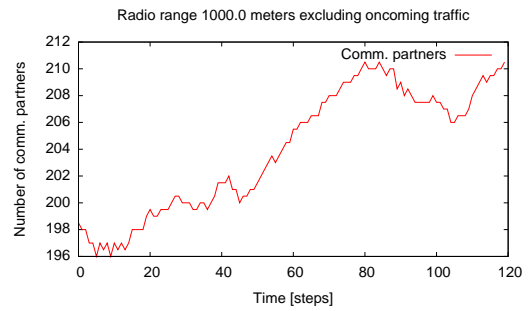
Avg. comm. partners: 406.29
Avg. active nodes: 409.94



Avg. comm. partners: 171.98
Avg. active nodes: 409.94

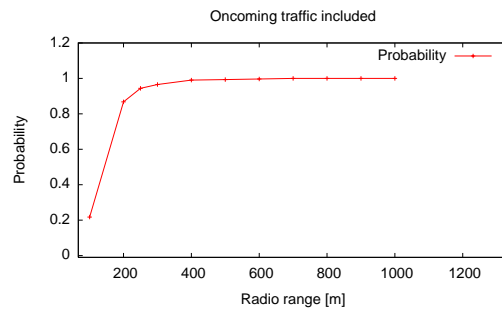


Avg. comm. partners: 408.94
Avg. active nodes: 409.94

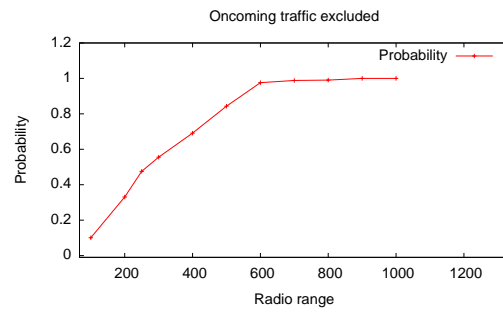


Avg. comm. partners: 203.97
Avg. active nodes: 409.94

A.17.7. Probability of being able to communicate with an arbitrary node



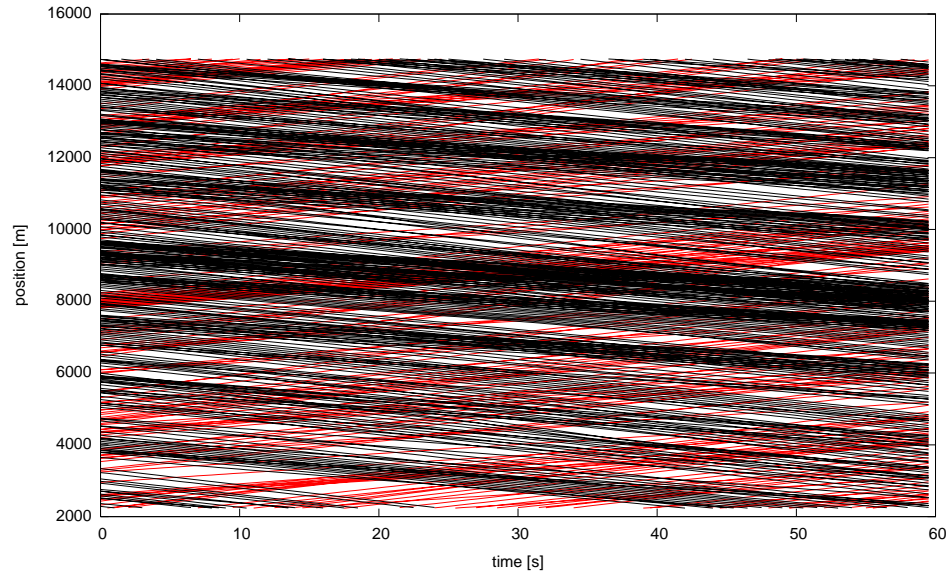
100.0 m:	0.22
200.0 m:	0.87
250.0 m:	0.94
300.0 m:	0.97
400.0 m:	0.99
500.0 m:	0.99
600.0 m:	1.00
700.0 m:	1.00
800.0 m:	1.00
900.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.10
200.0 m:	0.33
250.0 m:	0.48
300.0 m:	0.56
400.0 m:	0.69
500.0 m:	0.84
600.0 m:	0.98
700.0 m:	0.99
800.0 m:	0.99
900.0 m:	1.00
1000.0 m:	1.00

A.18. Scenario “mvmnt-hwgui-02lpd-06-11npkm-03.txt”

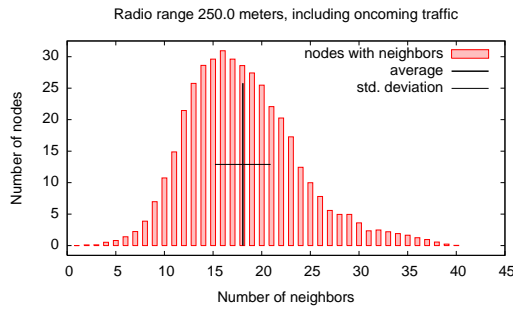
A.18.1. Trajectory plot



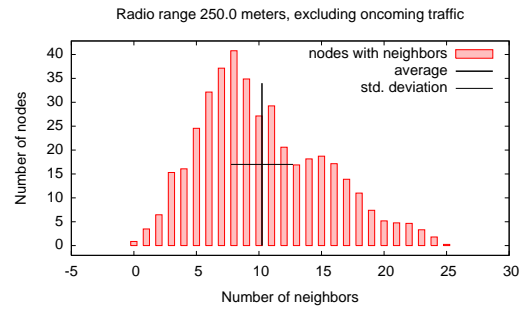
A.18.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	34.36
Number of nodes	499
Number of nodes (up)	186
Number of nodes (down)	313
Average node density [N/km]	34.17
Nodes per km and lane (up) [$N/(km \cdot lane)$]	6
Nodes per km and lane (down) [$N/(km \cdot lane)$]	11
Average number of active nodes	427.71
Average number of active nodes (up)	152.20
Average number of active nodes (down)	275.51
Number of lanes (up)	2
Length of valid area [m]	12515.50
Valid area start [m]	2235.40
Valid area end [m]	14750.90
Maximum CTR (both dirs) [m]	295.90

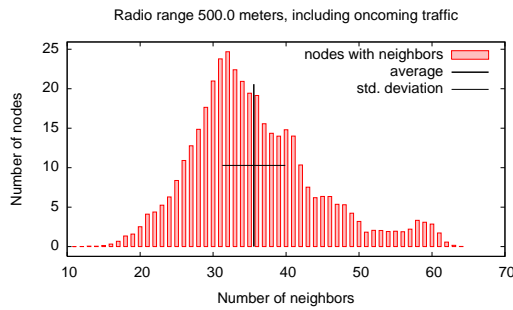
A.18.3. Neighbor histogram



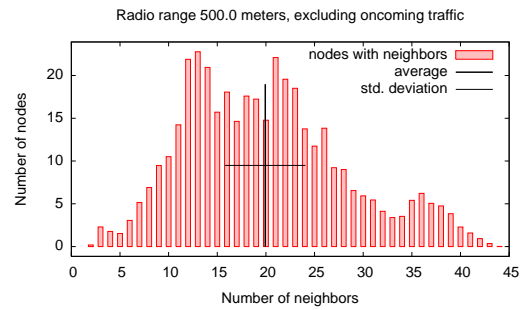
Average:	18.06
Variance:	32.71
Standard deviation:	5.72



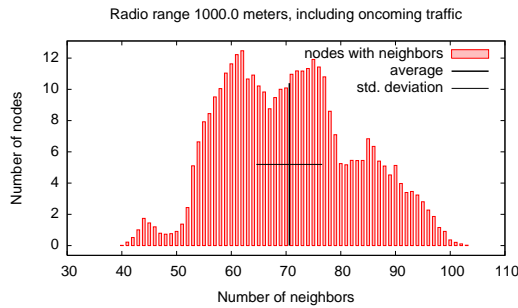
Average:	10.24
Variance:	24.54
Standard deviation:	4.95



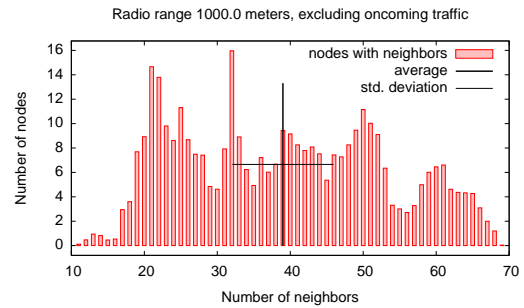
Average:	35.58
Variance:	74.37
Standard deviation:	8.62



Average:	19.94
Variance:	68.03
Standard deviation:	8.25



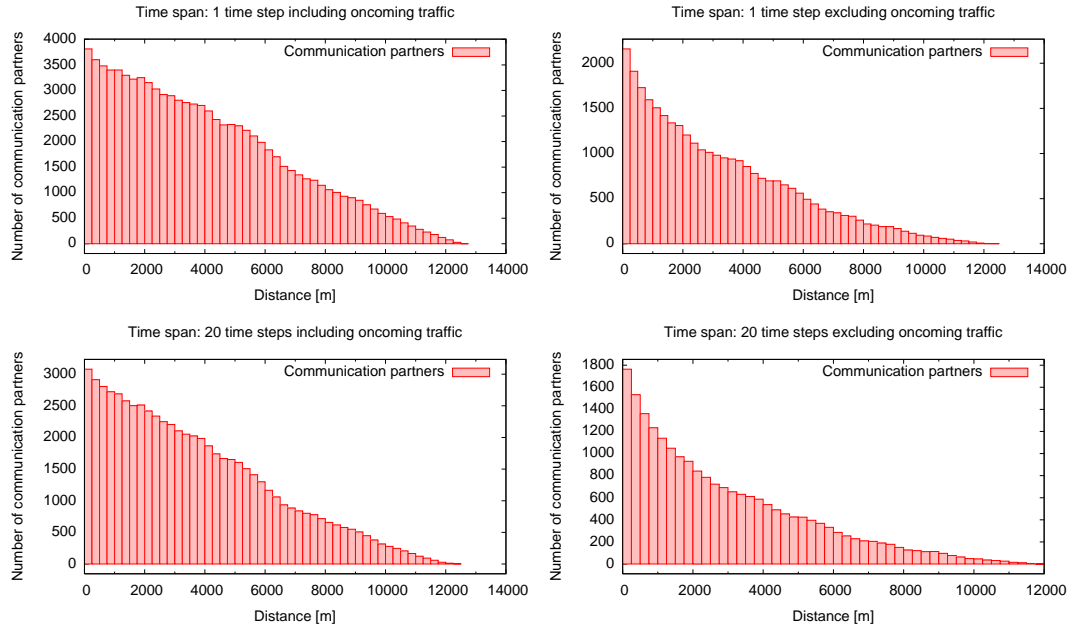
Average:	70.59
Variance:	144.42
Standard deviation:	12.02



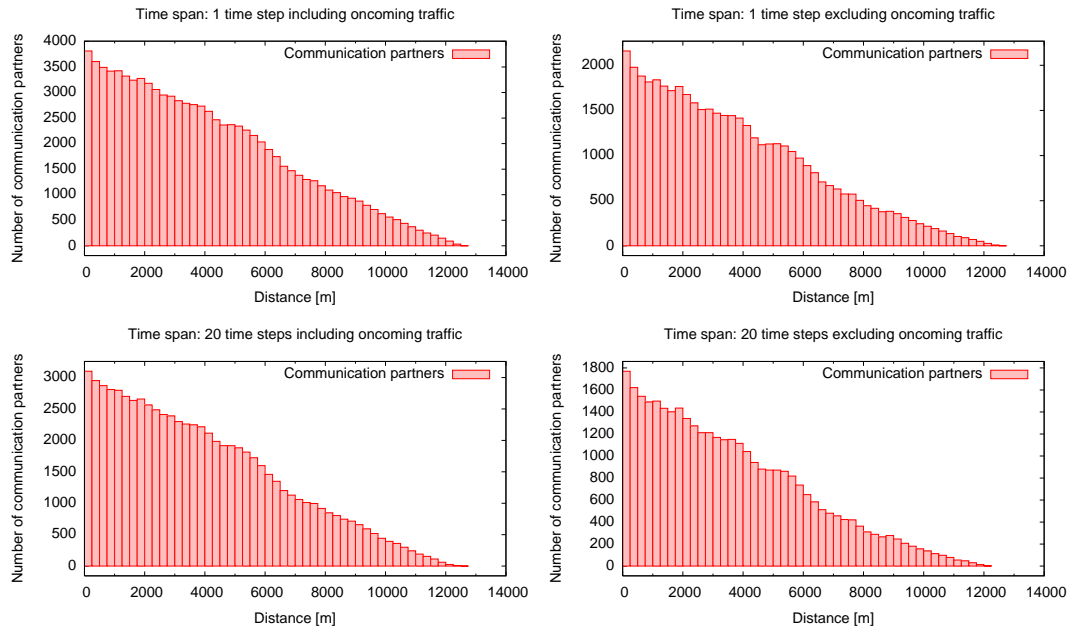
Average:	39.00
Variance:	193.04
Standard deviation:	13.89

A.18.4. Communication partner histogram

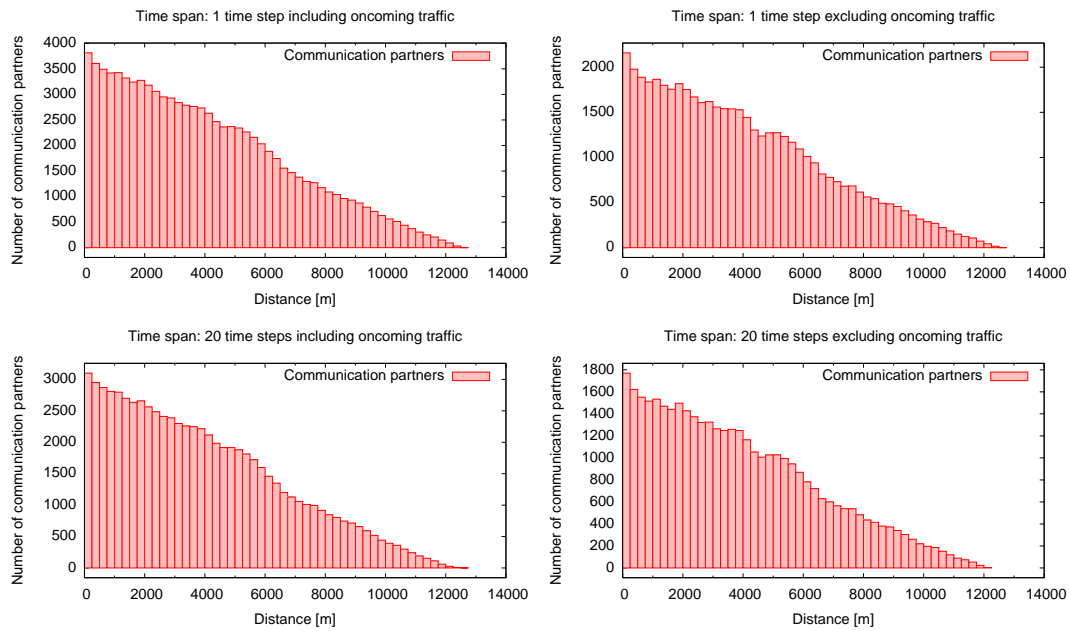
Radio range: 250.0 meters, bin size: 250.0 meters



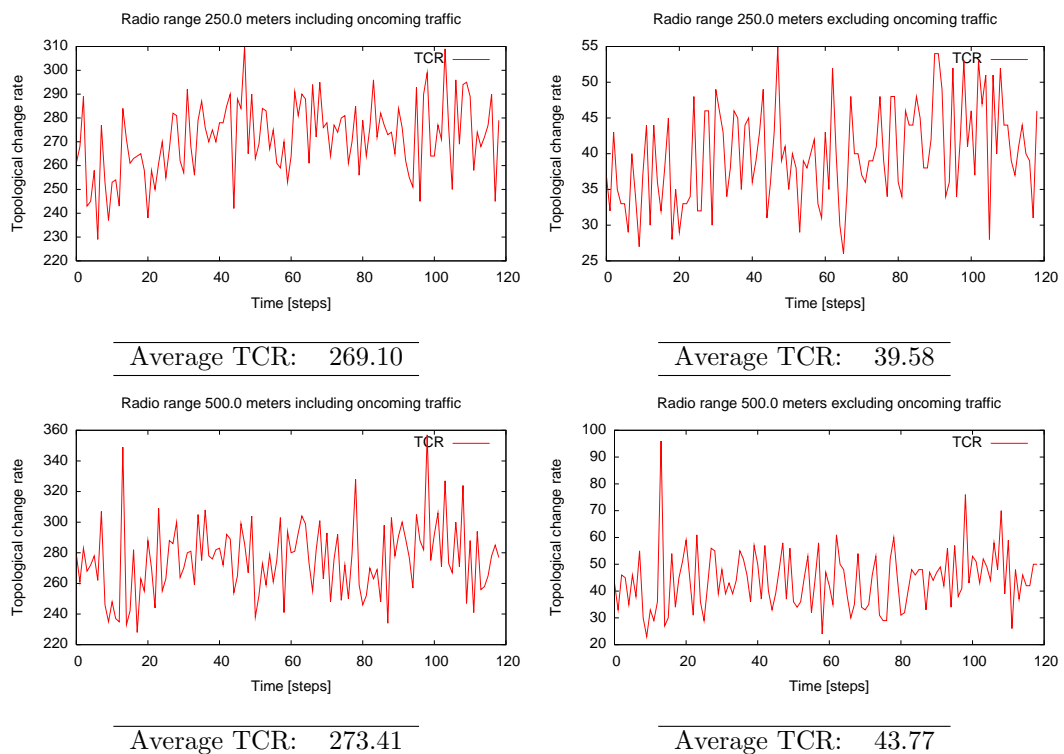
Radio range: 500.0 meters, bin size: 250.0 meters

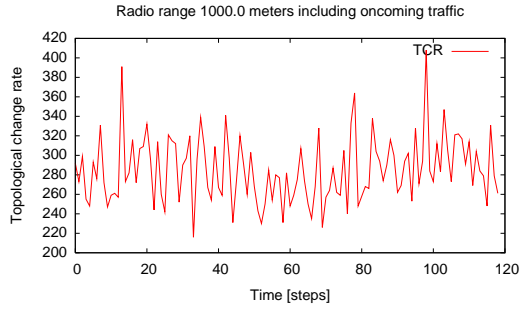


Radio range: 1000.0 meters, bin size: 250.0 meters

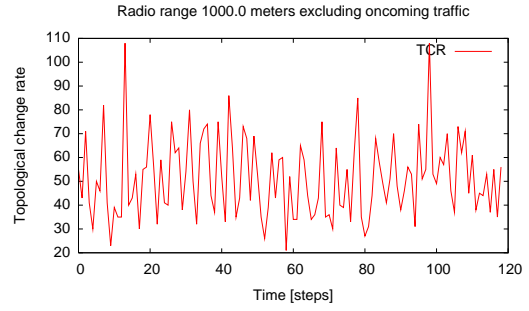


A.18.5. Topological Change Rate (TCR)



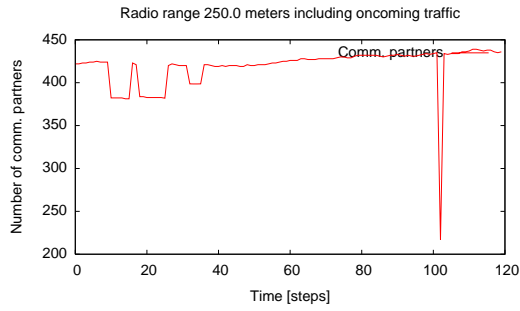


Average TCR: 282.63

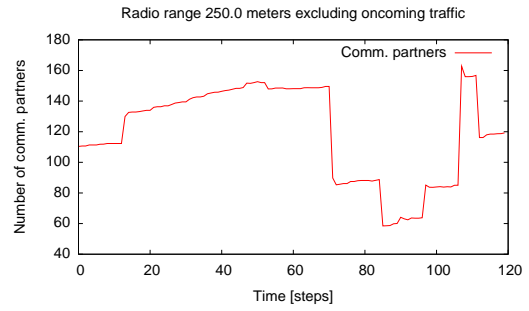


Average TCR: 50.87

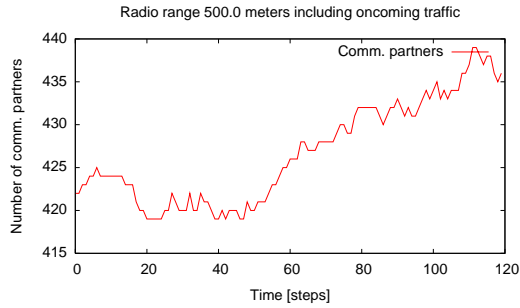
A.18.6. Total number of communication partners



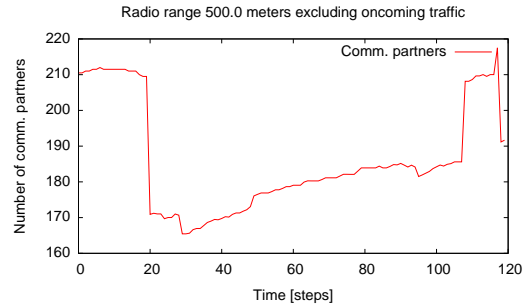
Avg. comm. partners: 419.64
Avg. active nodes: 427.71



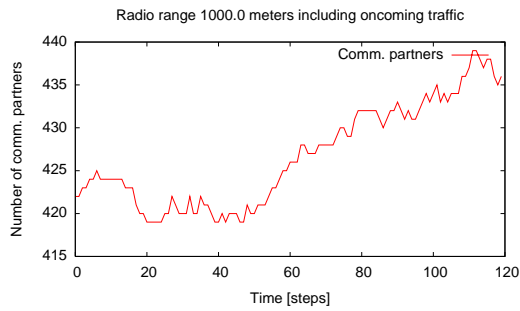
Avg. comm. partners: 119.52
Avg. active nodes: 427.71



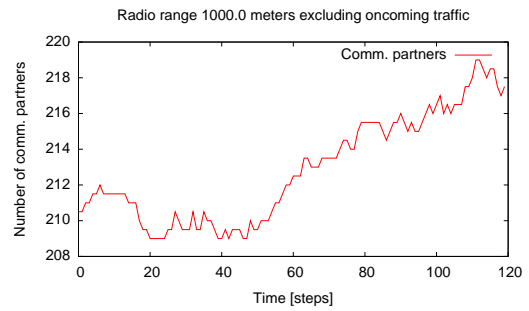
Avg. comm. partners: 426.71
Avg. active nodes: 427.71



Avg. comm. partners: 186.26
Avg. active nodes: 427.71

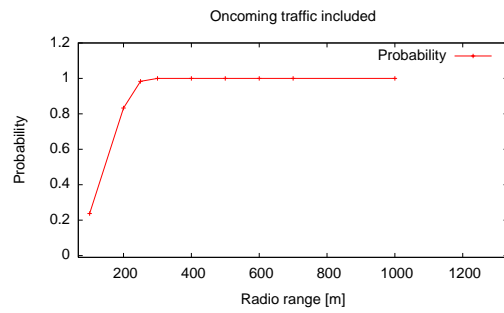


Avg. comm. partners: 426.71
Avg. active nodes: 427.71

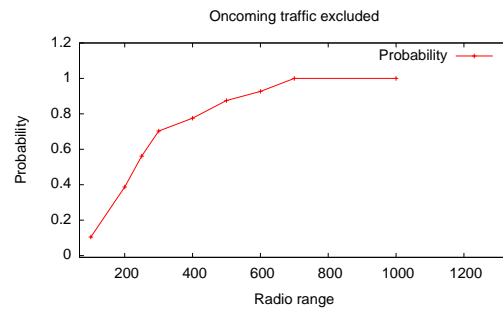


Avg. comm. partners: 212.85
Avg. active nodes: 427.71

A.18.7. Probability of being able to communicate with an arbitrary node



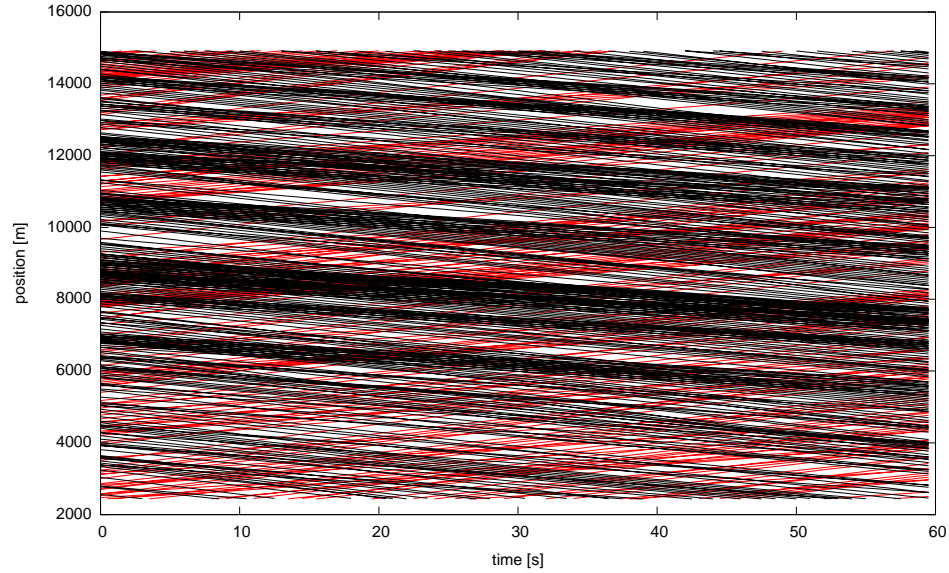
100.0 m:	0.24
200.0 m:	0.83
250.0 m:	0.98
300.0 m:	1.00
400.0 m:	1.00
500.0 m:	1.00
600.0 m:	1.00
700.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.10
200.0 m:	0.39
250.0 m:	0.56
300.0 m:	0.70
400.0 m:	0.78
500.0 m:	0.88
600.0 m:	0.93
700.0 m:	1.00
1000.0 m:	1.00

A.19. Scenario “mvmnt-hwgui-02lpd-06-11npkm-04.txt”

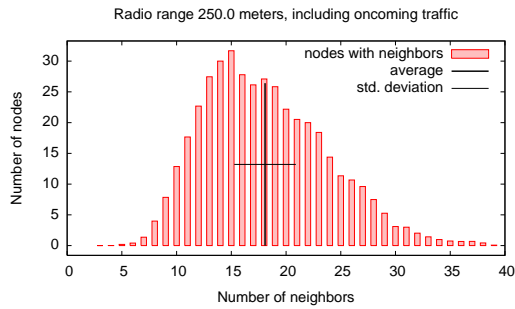
A.19.1. Trajectory plot



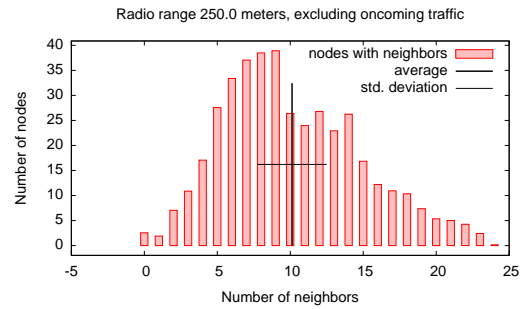
A.19.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	34.02
Number of nodes	500
Number of nodes (up)	189
Number of nodes (down)	311
Average node density [N/km]	34.56
Nodes per km and lane (up) [$N/(km \cdot lane)$]	6
Nodes per km and lane (down) [$N/(km \cdot lane)$]	11
Average number of active nodes	431.68
Average number of active nodes (up)	153.48
Average number of active nodes (down)	278.19
Number of lanes (up)	2
Length of valid area [m]	12492.10
Valid area start [m]	2433.10
Valid area end [m]	14925.20
Maximum CTR (both dirs) [m]	268.70

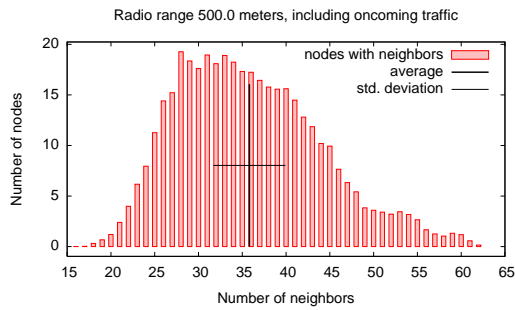
A.19.3. Neighbor histogram



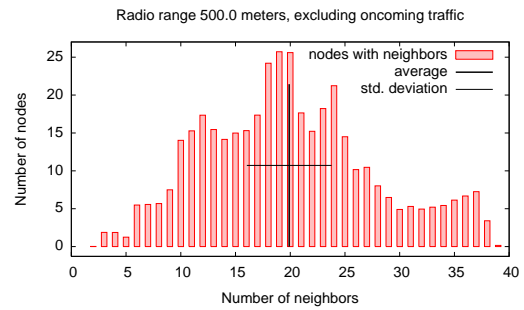
Average:	18.08
Variance:	31.72
Standard deviation:	5.63



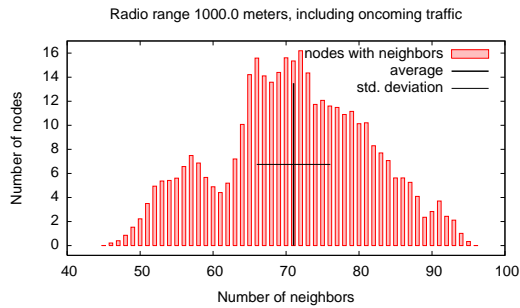
Average:	10.12
Variance:	22.49
Standard deviation:	4.74



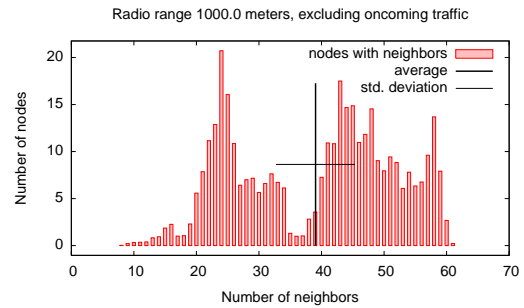
Average:	35.81
Variance:	67.65
Standard deviation:	8.23



Average:	19.90
Variance:	59.89
Standard deviation:	7.74



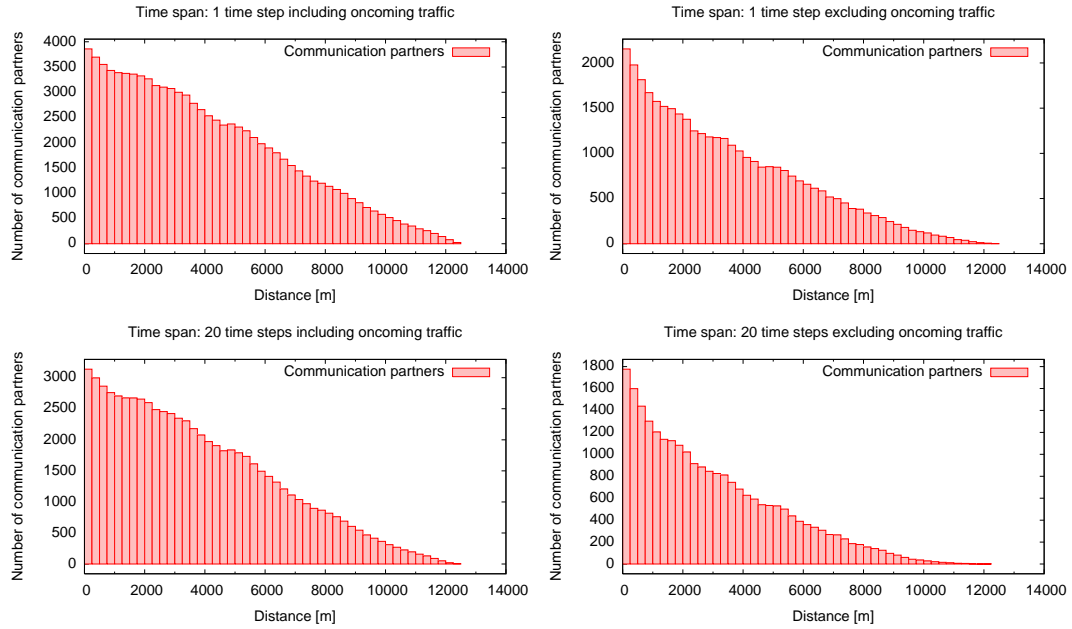
Average:	71.03
Variance:	101.75
Standard deviation:	10.09



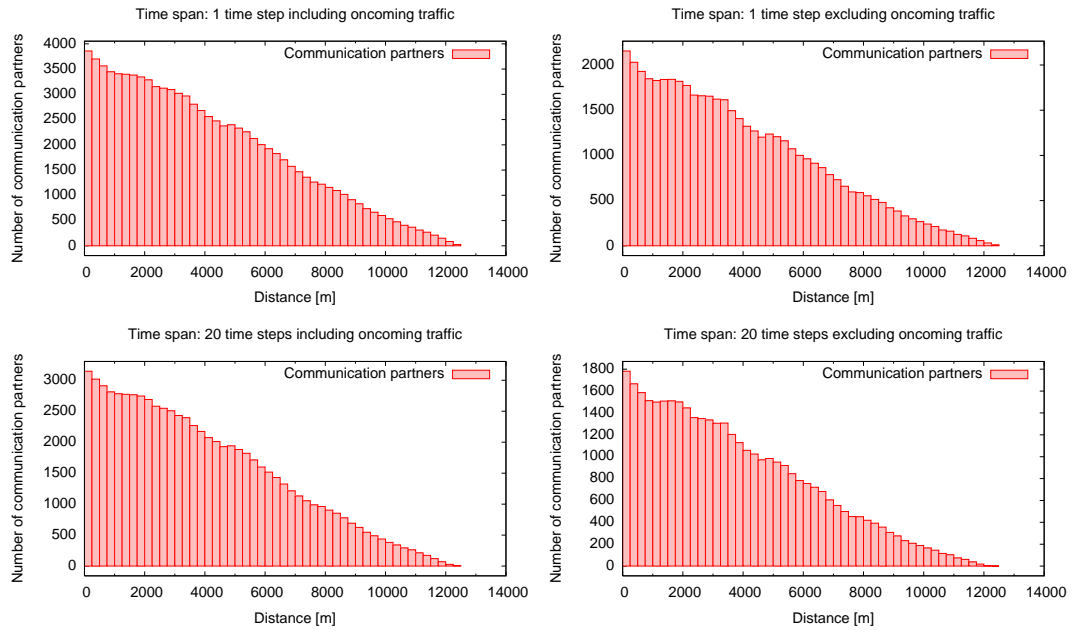
Average:	39.04
Variance:	159.18
Standard deviation:	12.62

A.19.4. Communication partner histogram

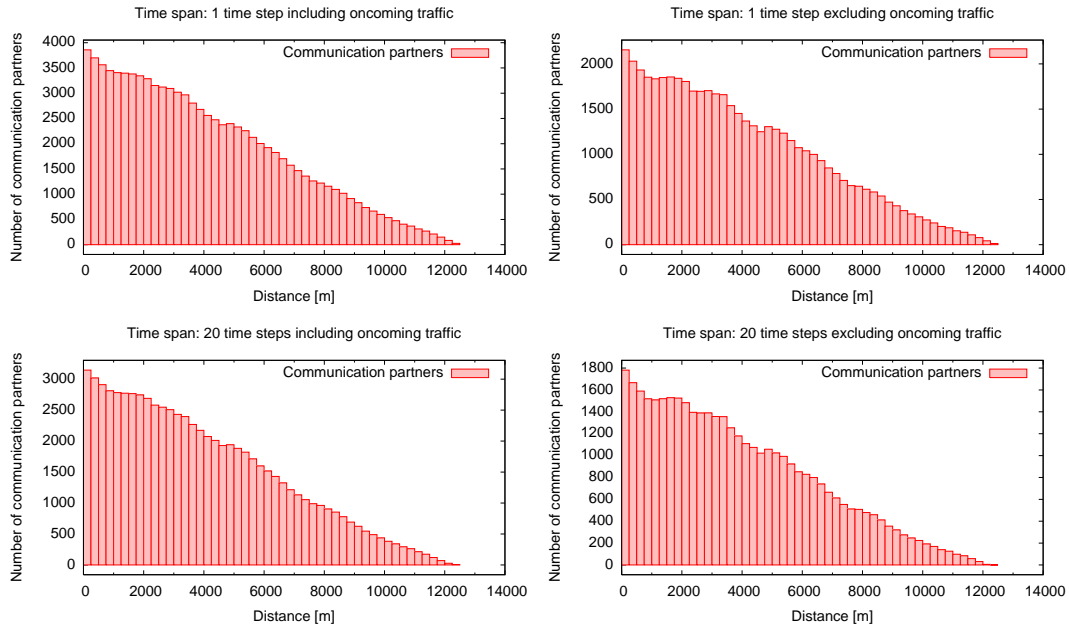
Radio range: 250.0 meters, bin size: 250.0 meters



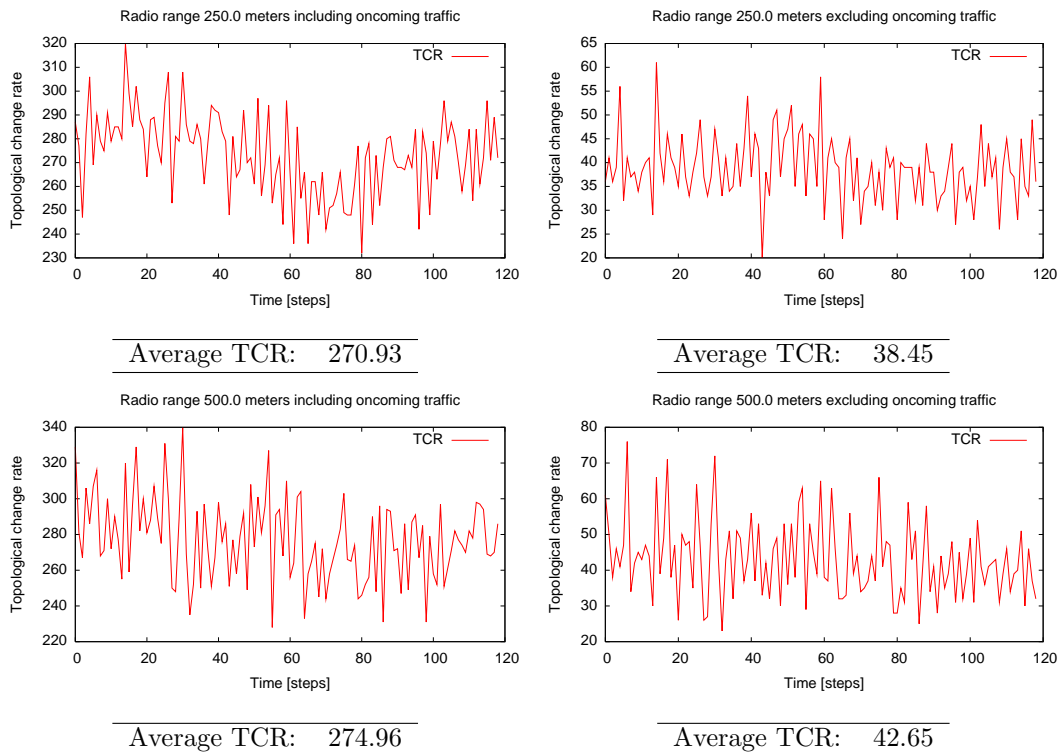
Radio range: 500.0 meters, bin size: 250.0 meters

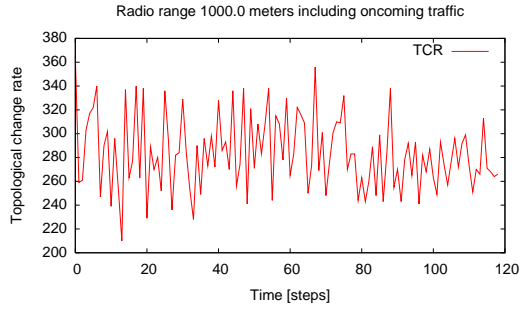


Radio range: 1000.0 meters, bin size: 250.0 meters

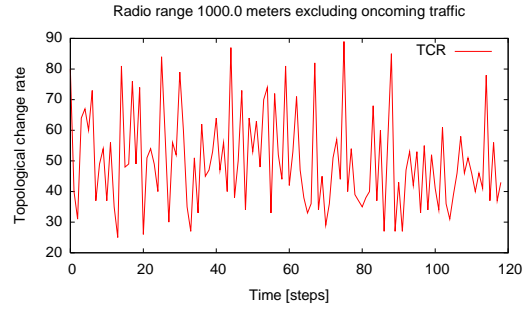


A.19.5. Topological Change Rate (TCR)



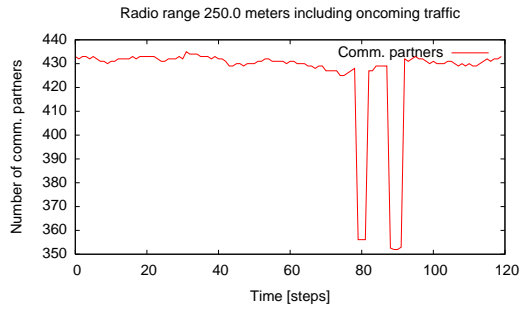


Average TCR: 281.07

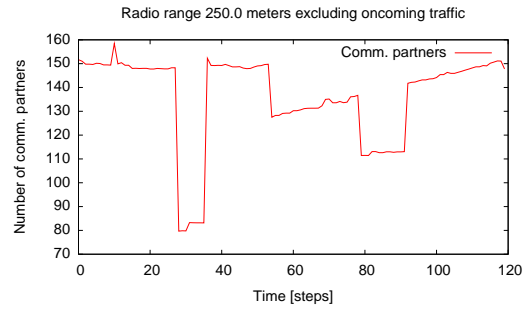


Average TCR: 49.63

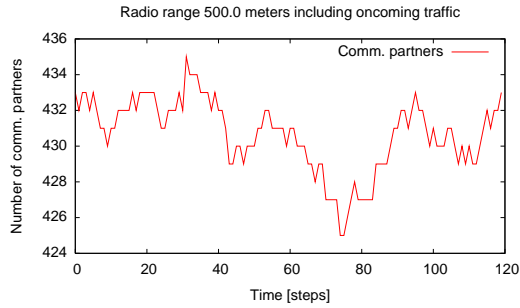
A.19.6. Total number of communication partners



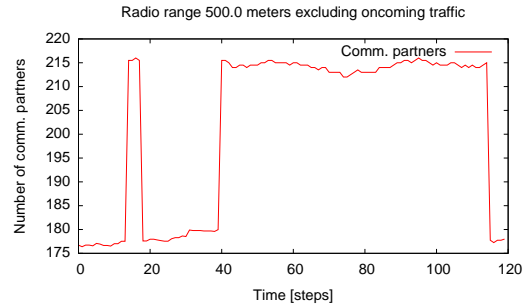
Avg. comm. partners: 426.28
Avg. active nodes: 431.68



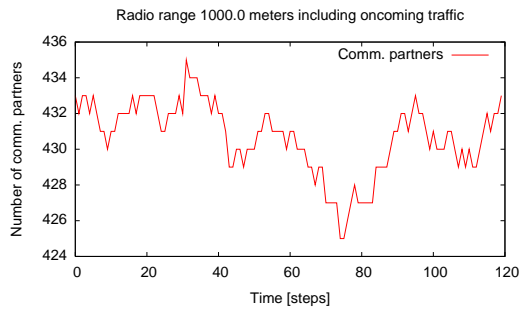
Avg. comm. partners: 136.52
Avg. active nodes: 431.68



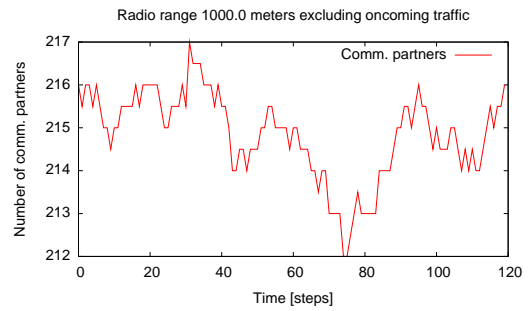
Avg. comm. partners: 430.68
Avg. active nodes: 431.68



Avg. comm. partners: 201.95
Avg. active nodes: 431.68

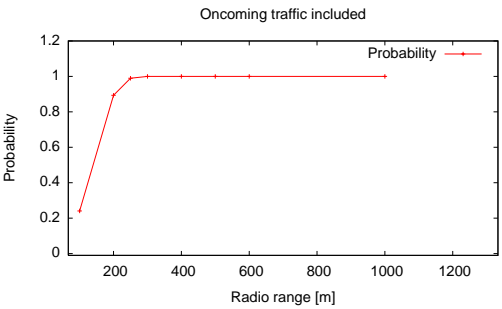


Avg. comm. partners: 430.68
Avg. active nodes: 431.68

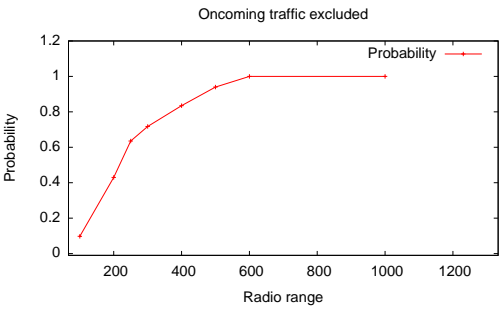


Avg. comm. partners: 214.84
Avg. active nodes: 431.68

A.19.7. Probability of being able to communicate with an arbitrary node



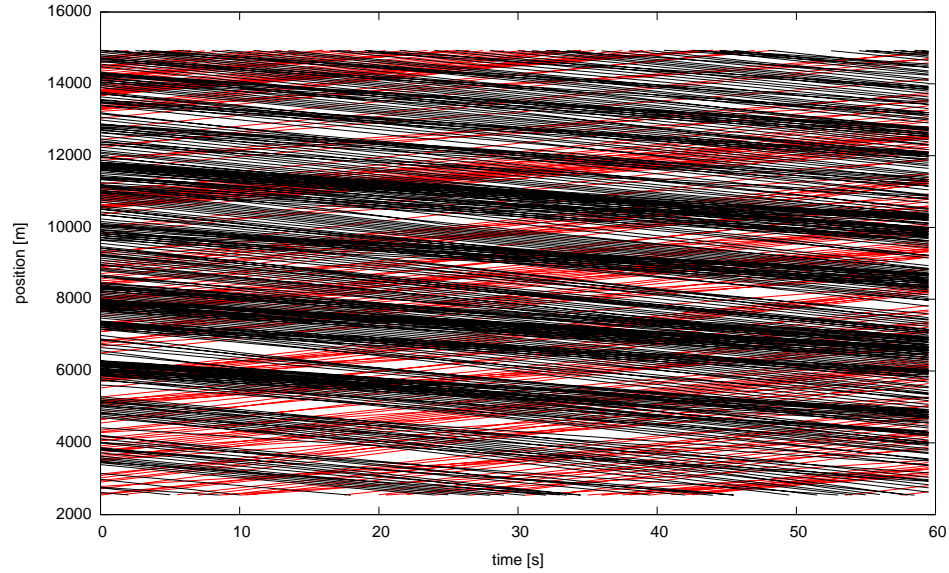
100.0 m:	0.24
200.0 m:	0.89
250.0 m:	0.99
300.0 m:	1.00
400.0 m:	1.00
500.0 m:	1.00
600.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.10
200.0 m:	0.43
250.0 m:	0.64
300.0 m:	0.72
400.0 m:	0.84
500.0 m:	0.94
600.0 m:	1.00
1000.0 m:	1.00

A.20. Scenario “mvmnt-hwgui-02lpd-06-11npkm-05.txt”

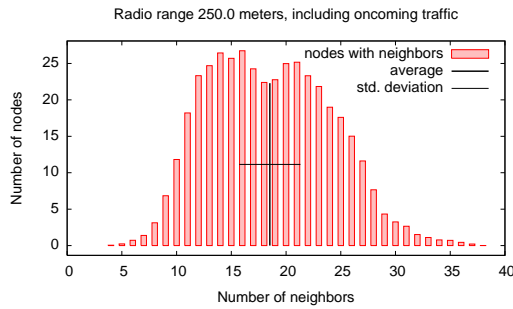
A.20.1. Trajectory plot



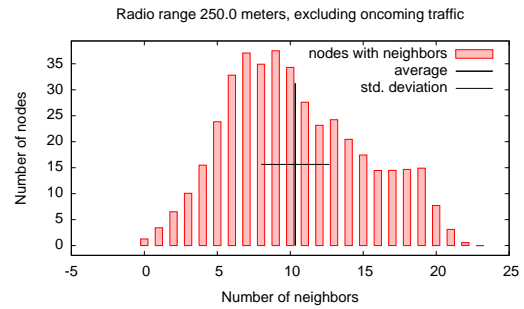
A.20.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	34.03
Number of nodes	503
Number of nodes (up)	191
Number of nodes (down)	312
Average node density [N/km]	35.16
Nodes per km and lane (up) [$N/(km \cdot lane)$]	6
Nodes per km and lane (down) [$N/(km \cdot lane)$]	11
Average number of active nodes	435.95
Average number of active nodes (up)	156.78
Average number of active nodes (down)	279.17
Number of lanes (up)	2
Length of valid area [m]	12398.70
Valid area start [m]	2537.40
Valid area end [m]	14936.10
Maximum CTR (both dirs) [m]	335.71

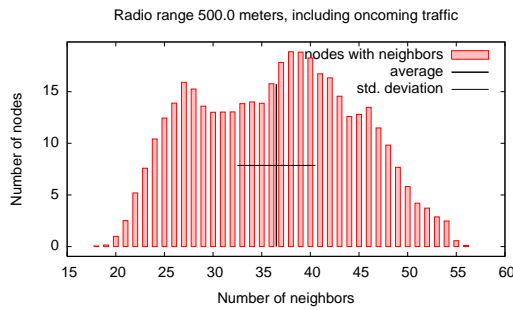
A.20.3. Neighbor histogram



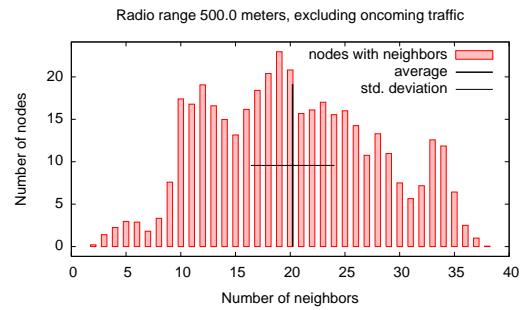
Average:	18.52
Variance:	31.16
Standard deviation:	5.58



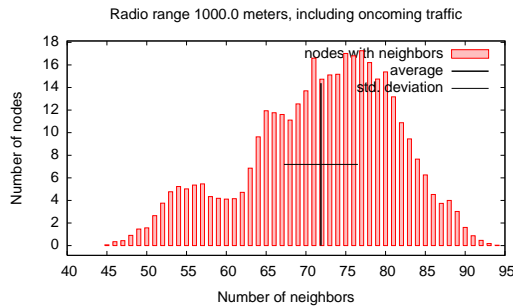
Average:	10.35
Variance:	21.82
Standard deviation:	4.67



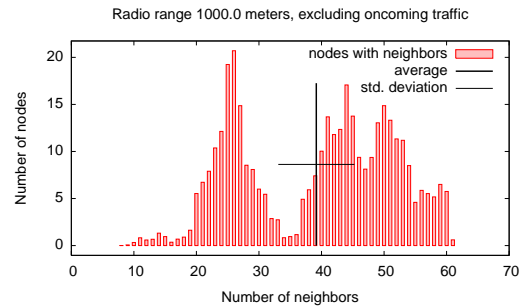
Average:	36.51
Variance:	64.66
Standard deviation:	8.04



Average:	20.21
Variance:	58.18
Standard deviation:	7.63



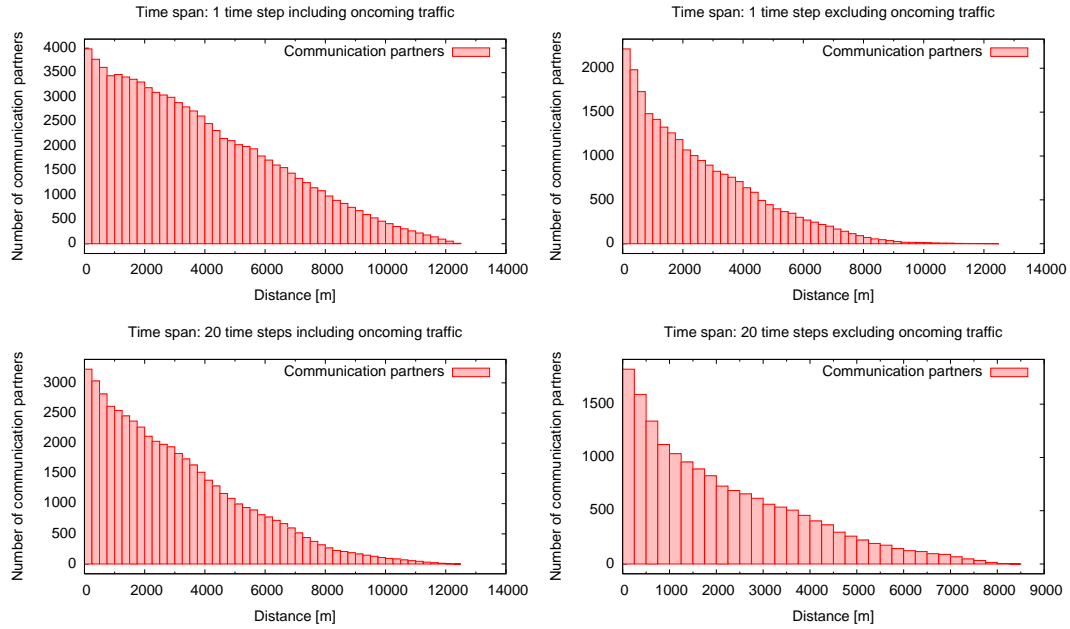
Average:	71.88
Variance:	86.25
Standard deviation:	9.29



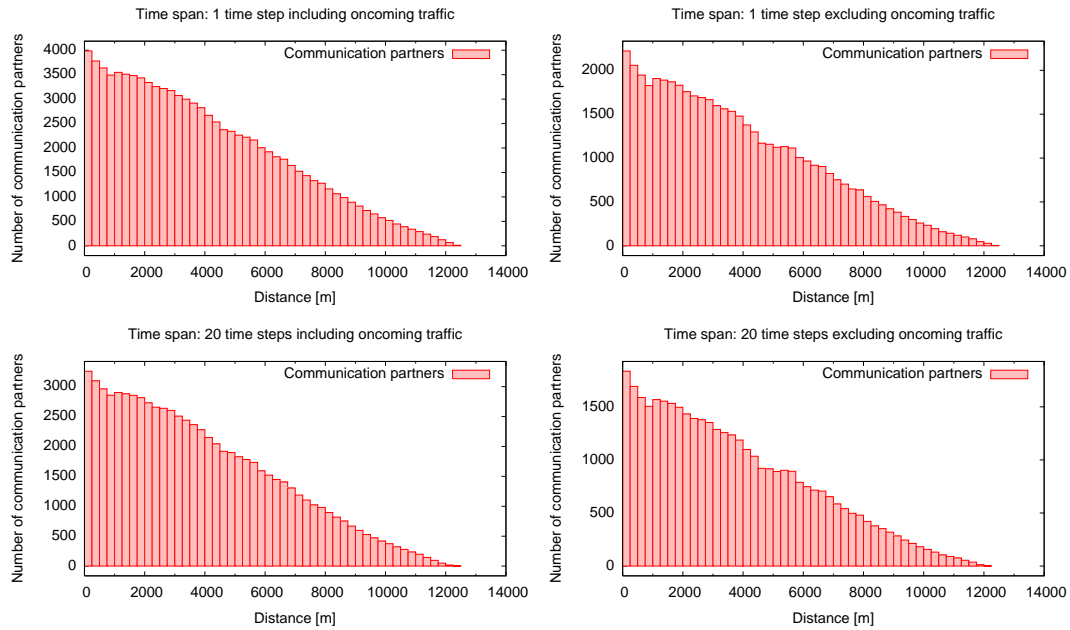
Average:	39.17
Variance:	147.95
Standard deviation:	12.16

A.20.4. Communication partner histogram

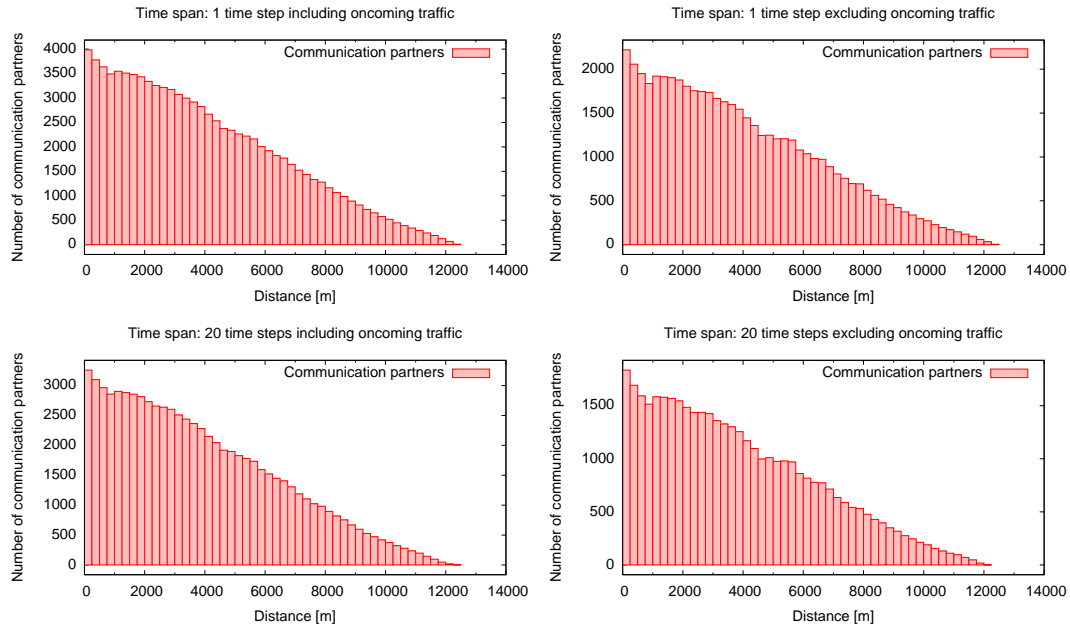
Radio range: 250.0 meters, bin size: 250.0 meters



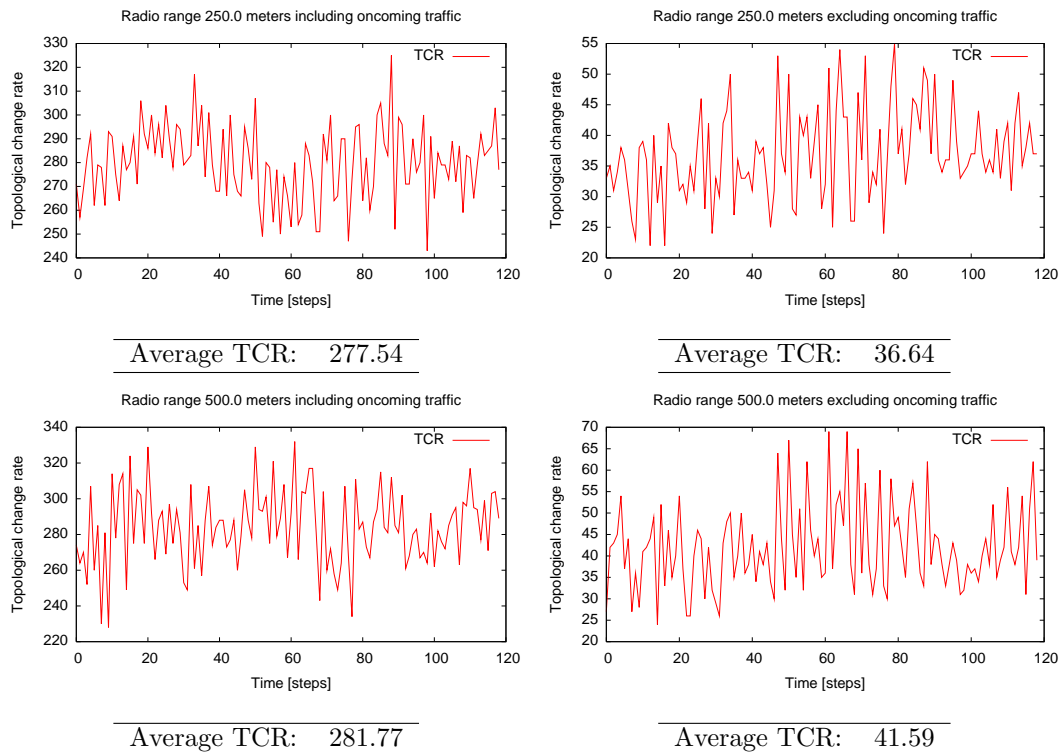
Radio range: 500.0 meters, bin size: 250.0 meters

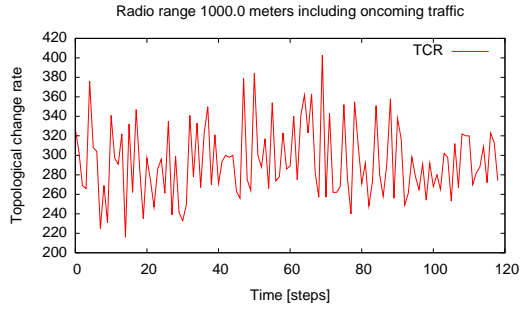


Radio range: 1000.0 meters, bin size: 250.0 meters

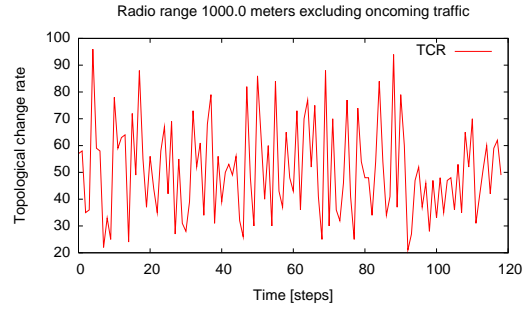


A.20.5. Topological Change Rate (TCR)



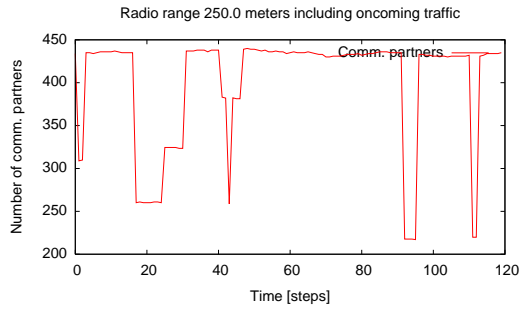


Average TCR: 291.15

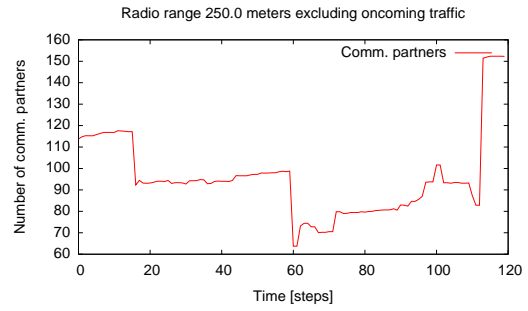


Average TCR: 50.40

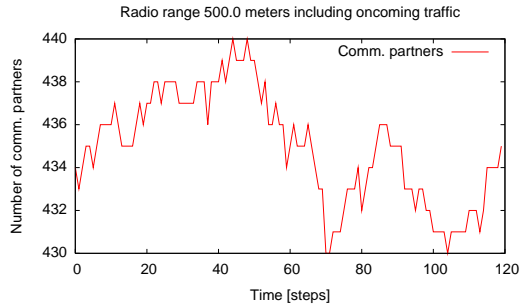
A.20.6. Total number of communication partners



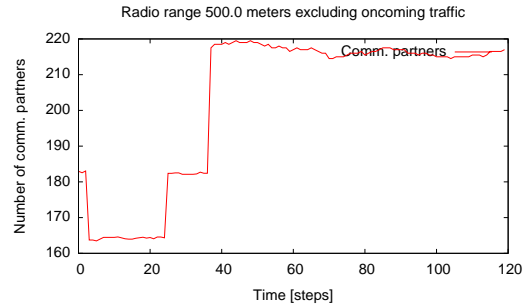
Avg. comm. partners: 400.85
Avg. active nodes: 435.95



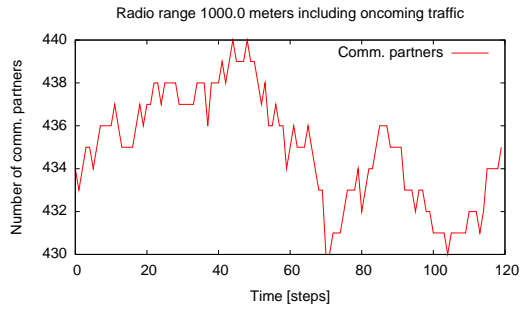
Avg. comm. partners: 95.60
Avg. active nodes: 435.95



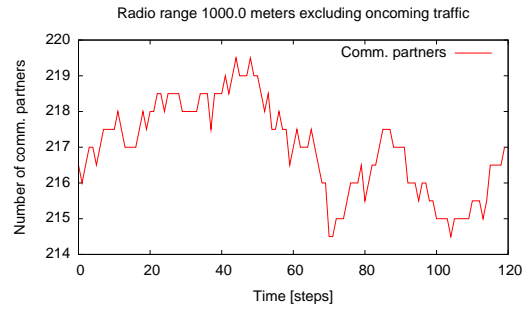
Avg. comm. partners: 434.95
Avg. active nodes: 435.95



Avg. comm. partners: 202.78
Avg. active nodes: 435.95

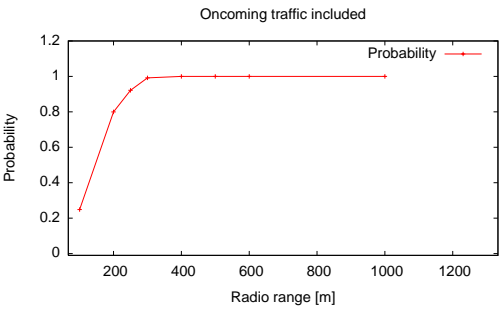


Avg. comm. partners: 434.95
Avg. active nodes: 435.95

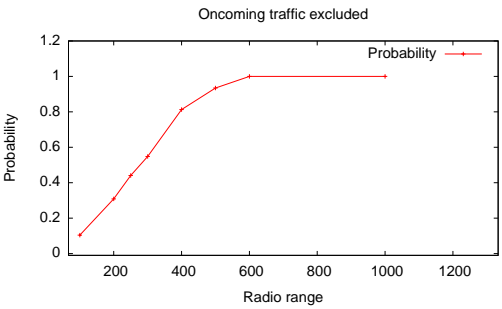


Avg. comm. partners: 216.97
Avg. active nodes: 435.95

A.20.7. Probability of being able to communicate with an arbitrary node



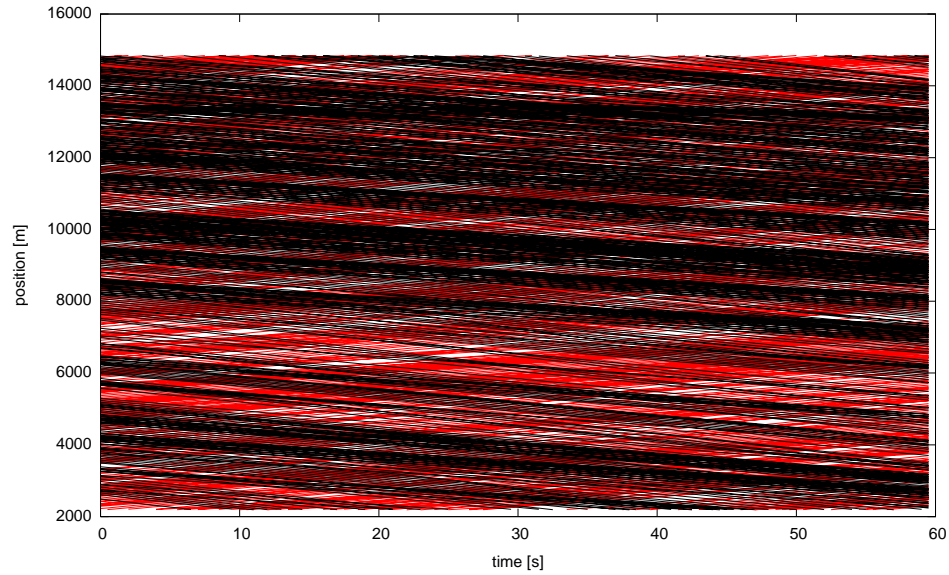
100.0 m:	0.25
200.0 m:	0.80
250.0 m:	0.92
300.0 m:	0.99
400.0 m:	1.00
500.0 m:	1.00
600.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.10
200.0 m:	0.31
250.0 m:	0.44
300.0 m:	0.55
400.0 m:	0.81
500.0 m:	0.93
600.0 m:	1.00
1000.0 m:	1.00

A.21. Scenario “mvmnt-hwgui-02lpd-15-15npkm-01.txt”

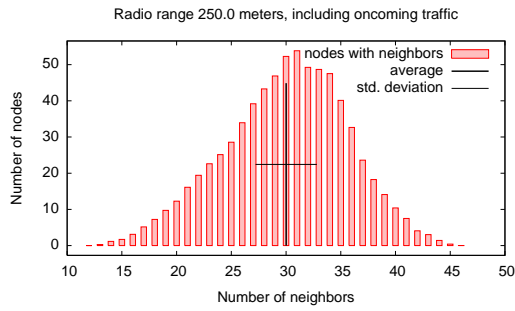
A.21.1. Trajectory plot



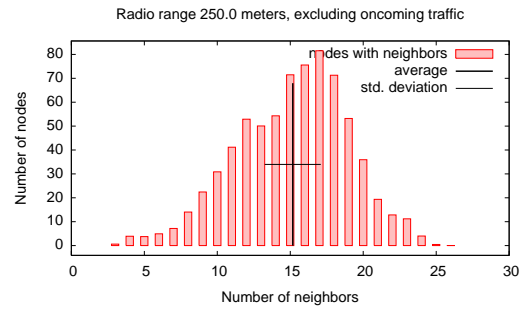
A.21.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	30.85
Number of nodes	843
Number of nodes (up)	440
Number of nodes (down)	403
Average node density [N/km]	59.22
Nodes per km and lane (up) [$N/(km \cdot lane)$]	15
Nodes per km and lane (down) [$N/(km \cdot lane)$]	15
Average number of active nodes	749.54
Average number of active nodes (up)	384.73
Average number of active nodes (down)	364.82
Number of lanes (up)	2
Length of valid area [m]	12656.80
Valid area start [m]	2190.10
Valid area end [m]	14846.90
Maximum CTR (both dirs) [m]	151.12

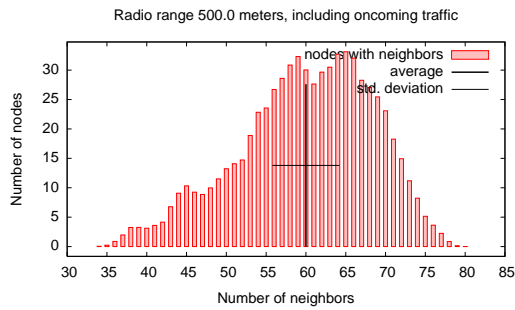
A.21.3. Neighbor histogram



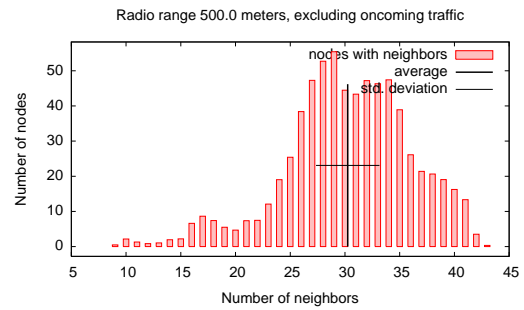
Average:	30.01
Variance:	31.29
Standard deviation:	5.59



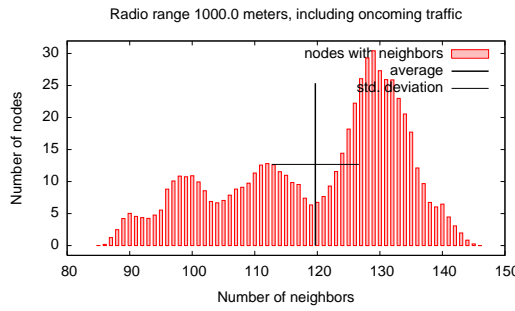
Average:	15.18
Variance:	14.72
Standard deviation:	3.84



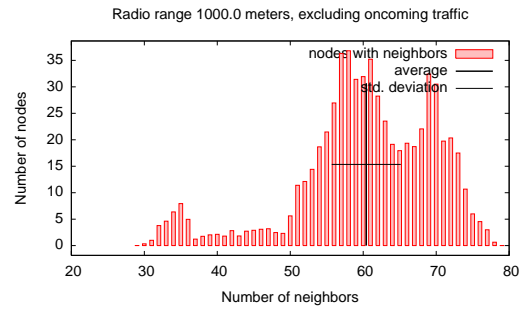
Average:	60.00
Variance:	70.86
Standard deviation:	8.42



Average:	30.25
Variance:	33.57
Standard deviation:	5.79



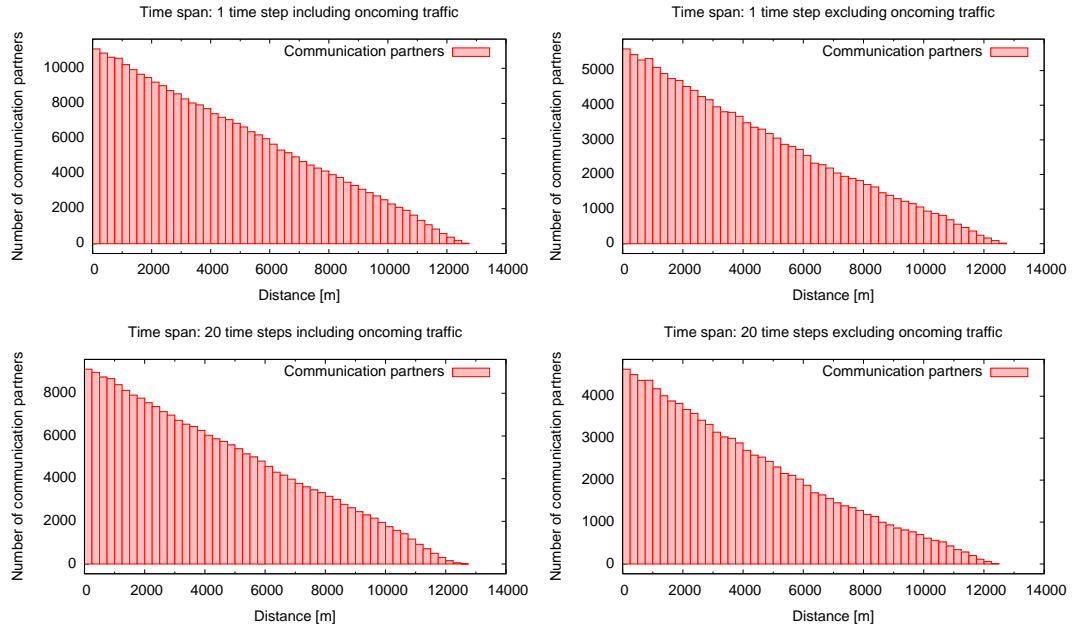
Average:	119.69
Variance:	193.47
Standard deviation:	13.91



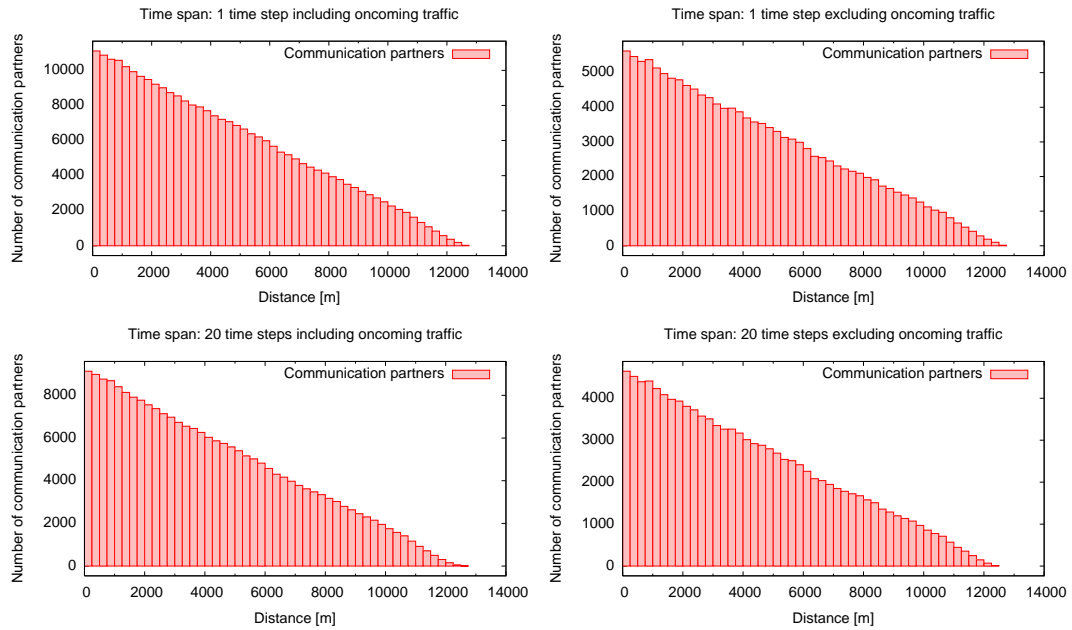
Average:	60.42
Variance:	89.42
Standard deviation:	9.46

A.21.4. Communication partner histogram

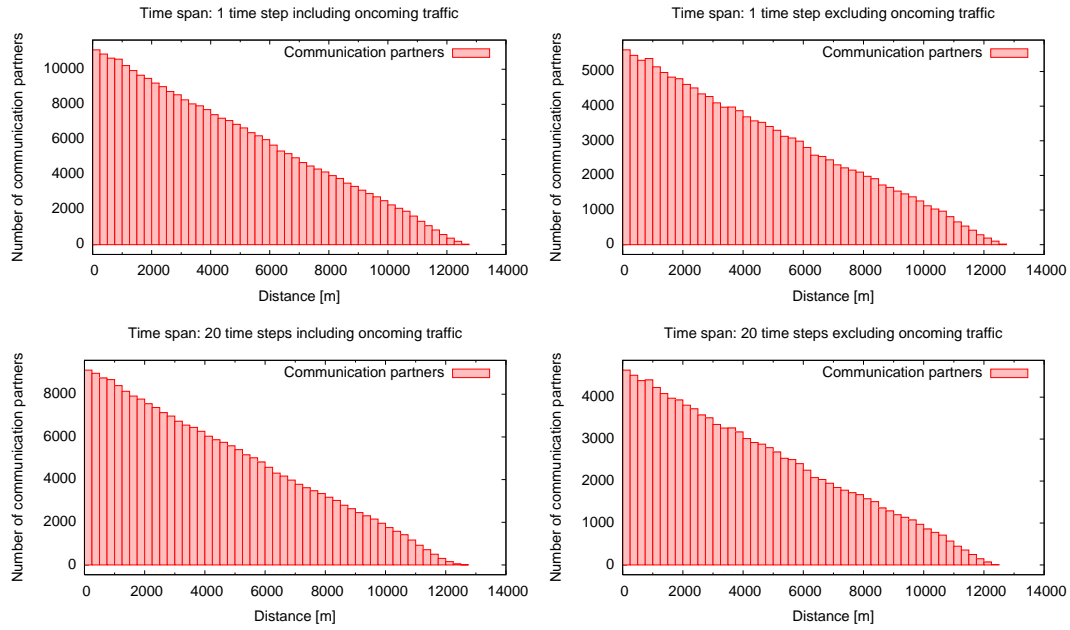
Radio range: 250.0 meters, bin size: 250.0 meters



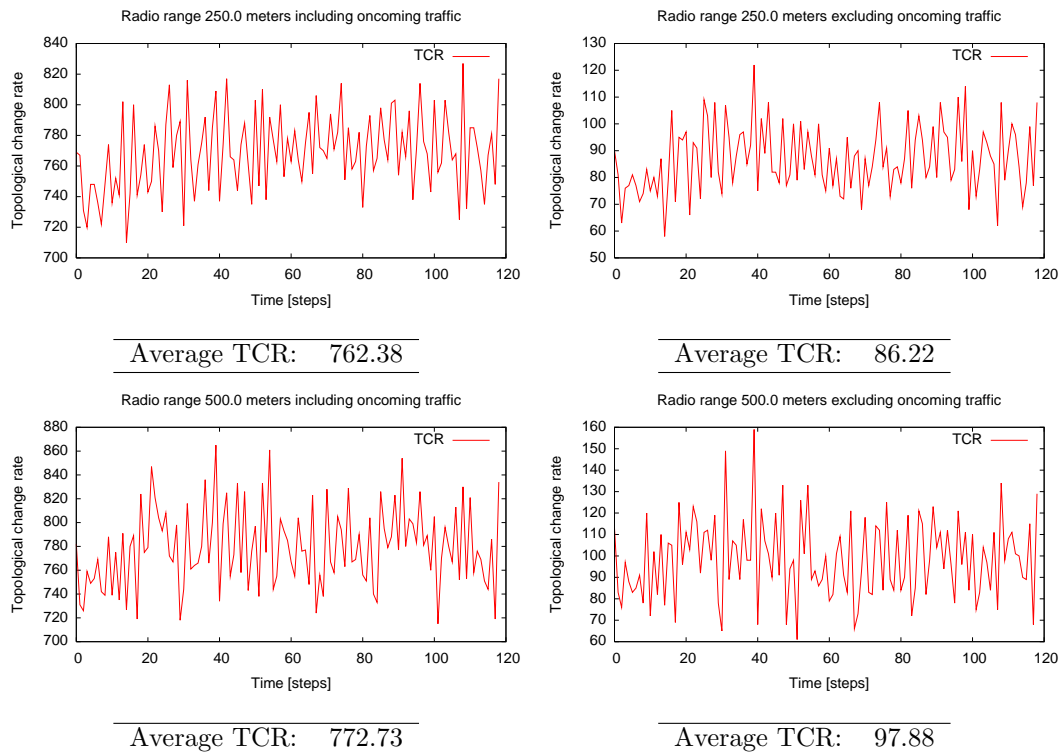
Radio range: 500.0 meters, bin size: 250.0 meters

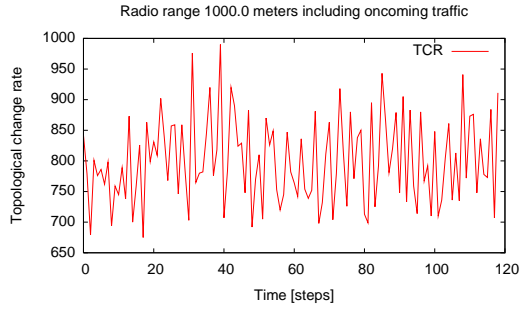


Radio range: 1000.0 meters, bin size: 250.0 meters

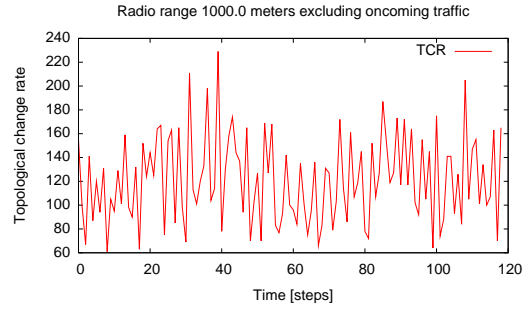


A.21.5. Topological Change Rate (TCR)



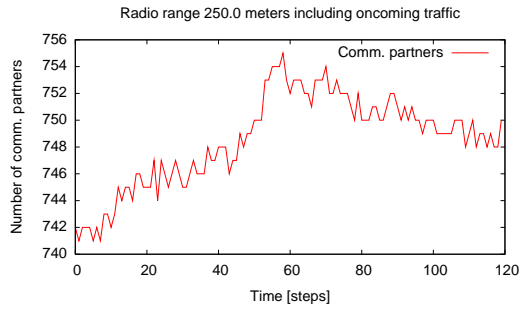


Average TCR: 793.32

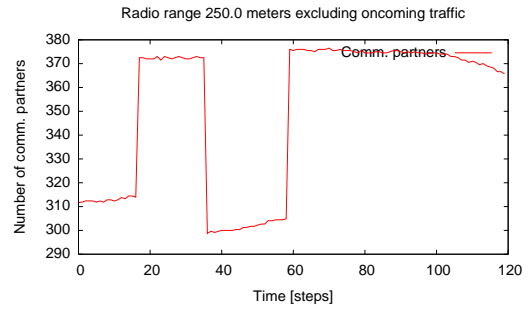


Average TCR: 120.50

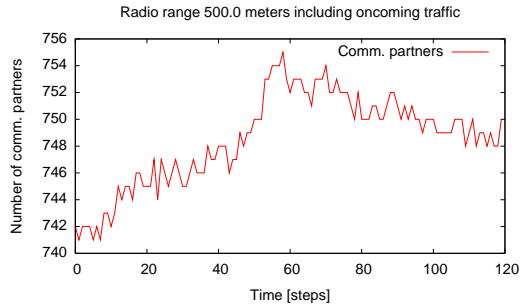
A.21.6. Total number of communication partners



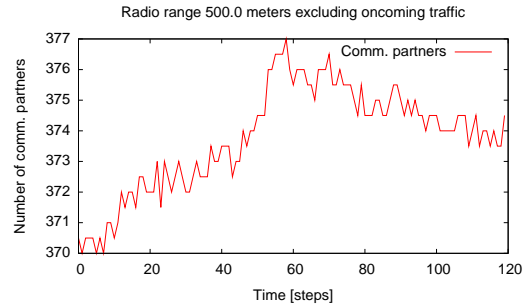
Avg. comm. partners: 748.54
Avg. active nodes: 749.54



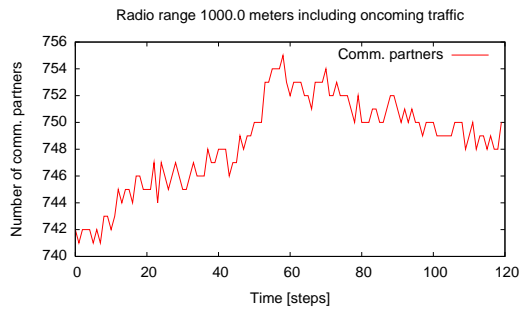
Avg. comm. partners: 351.07
Avg. active nodes: 749.54



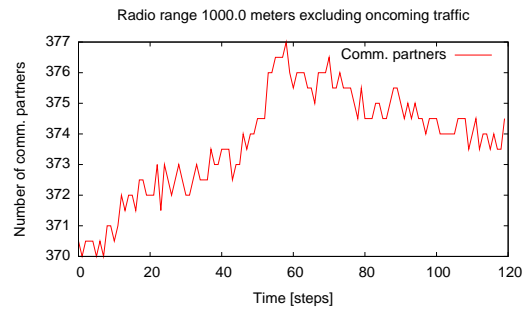
Avg. comm. partners: 748.54
Avg. active nodes: 749.54



Avg. comm. partners: 373.77
Avg. active nodes: 749.54

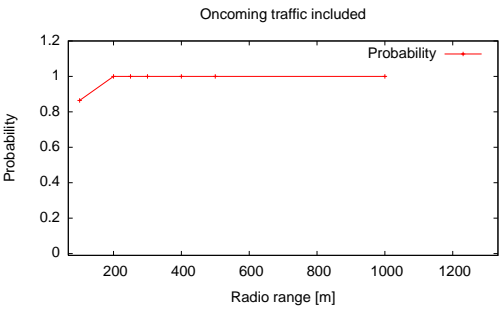


Avg. comm. partners: 748.54
Avg. active nodes: 749.54

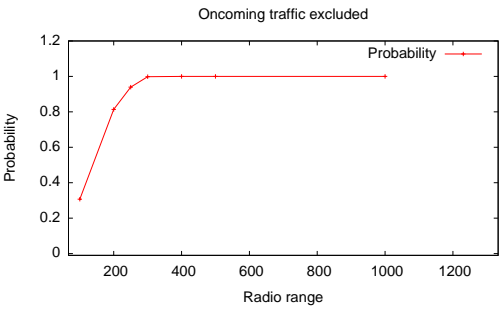


Avg. comm. partners: 373.77
Avg. active nodes: 749.54

A.21.7. Probability of being able to communicate with an arbitrary node



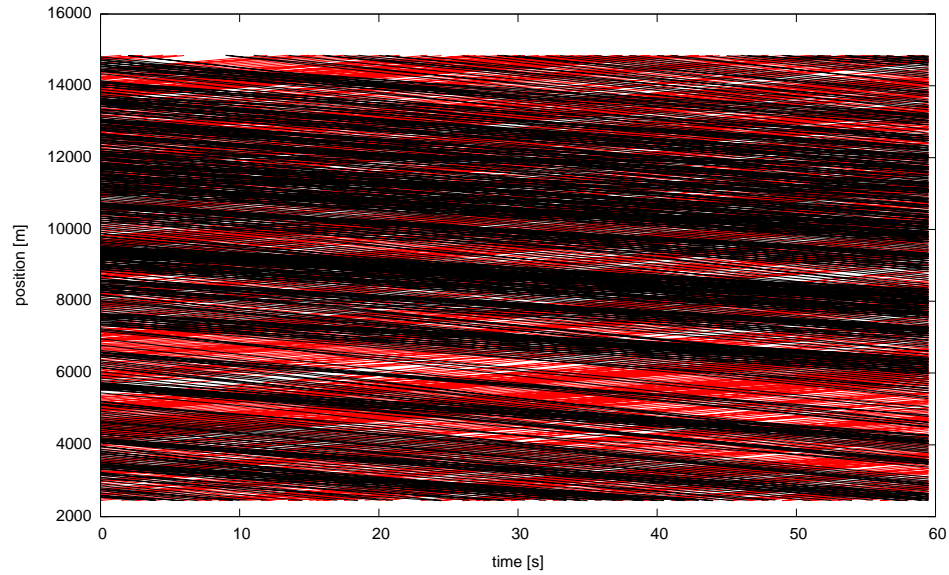
100.0 m:	0.86
200.0 m:	1.00
250.0 m:	1.00
300.0 m:	1.00
400.0 m:	1.00
500.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.31
200.0 m:	0.81
250.0 m:	0.94
300.0 m:	1.00
400.0 m:	1.00
500.0 m:	1.00
1000.0 m:	1.00

A.22. Scenario “mvmnt-hwgui-02lpd-15-15npkm-02.txt”

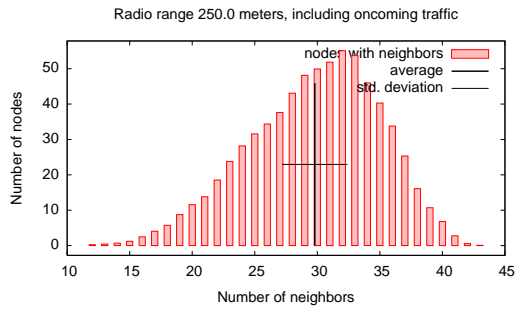
A.22.1. Trajectory plot



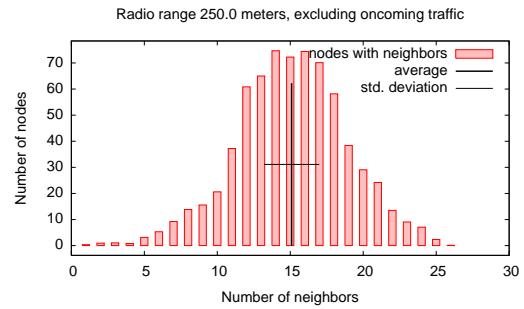
A.22.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	31.02
Number of nodes	840
Number of nodes (up)	435
Number of nodes (down)	405
Average node density [N/km]	59.23
Nodes per km and lane (up) [$N/(km \cdot lane)$]	15
Nodes per km and lane (down) [$N/(km \cdot lane)$]	15
Average number of active nodes	735.12
Average number of active nodes (up)	380.54
Average number of active nodes (down)	354.58
Number of lanes (up)	2
Length of valid area [m]	12410.60
Valid area start [m]	2442.00
Valid area end [m]	14852.60
Maximum CTR (both dirs) [m]	165.55

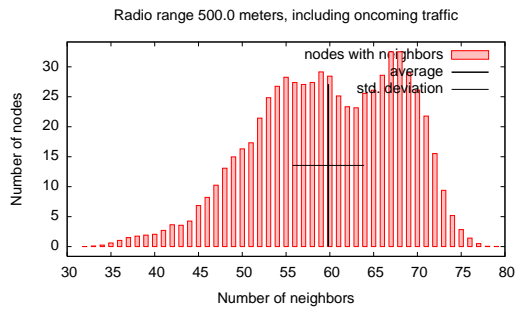
A.22.3. Neighbor histogram



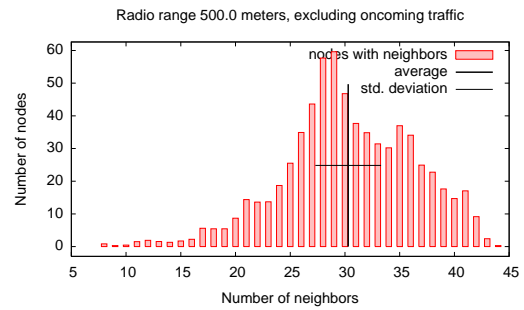
Average:	29.80
Variance:	27.15
Standard deviation:	5.21



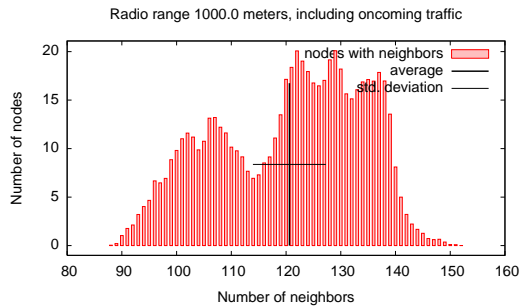
Average:	15.10
Variance:	14.40
Standard deviation:	3.80



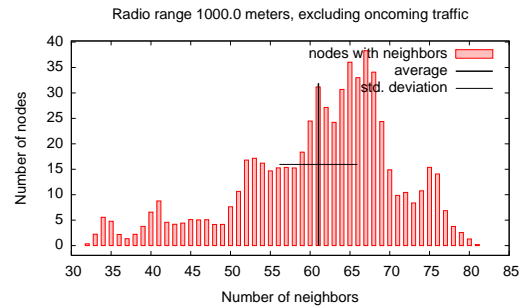
Average:	59.83
Variance:	66.46
Standard deviation:	8.15



Average:	30.30
Variance:	36.02
Standard deviation:	6.00



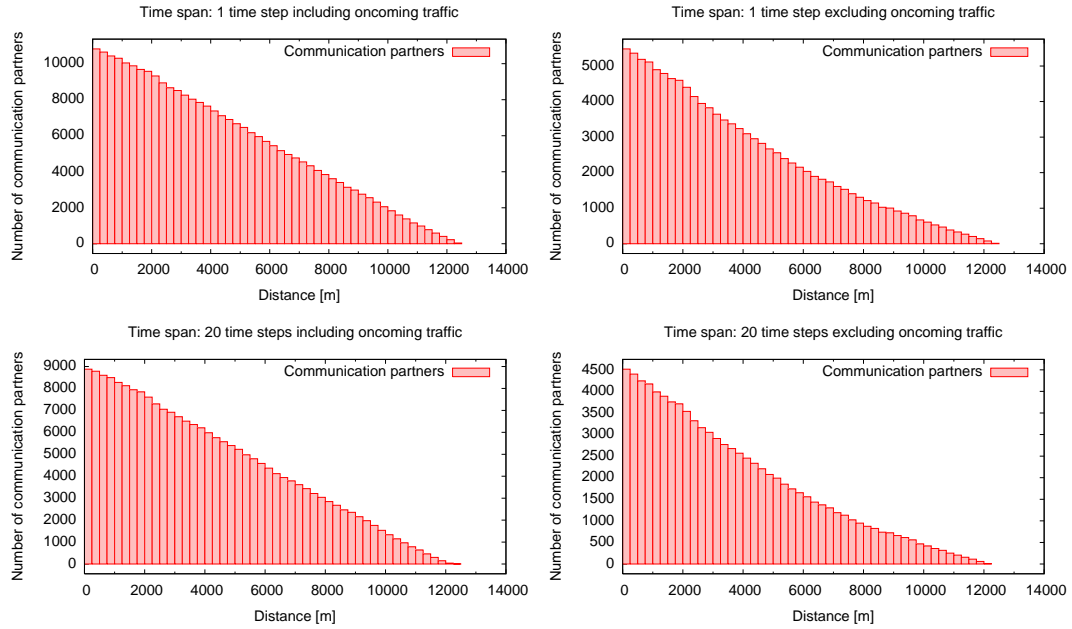
Average:	120.61
Variance:	177.37
Standard deviation:	13.32



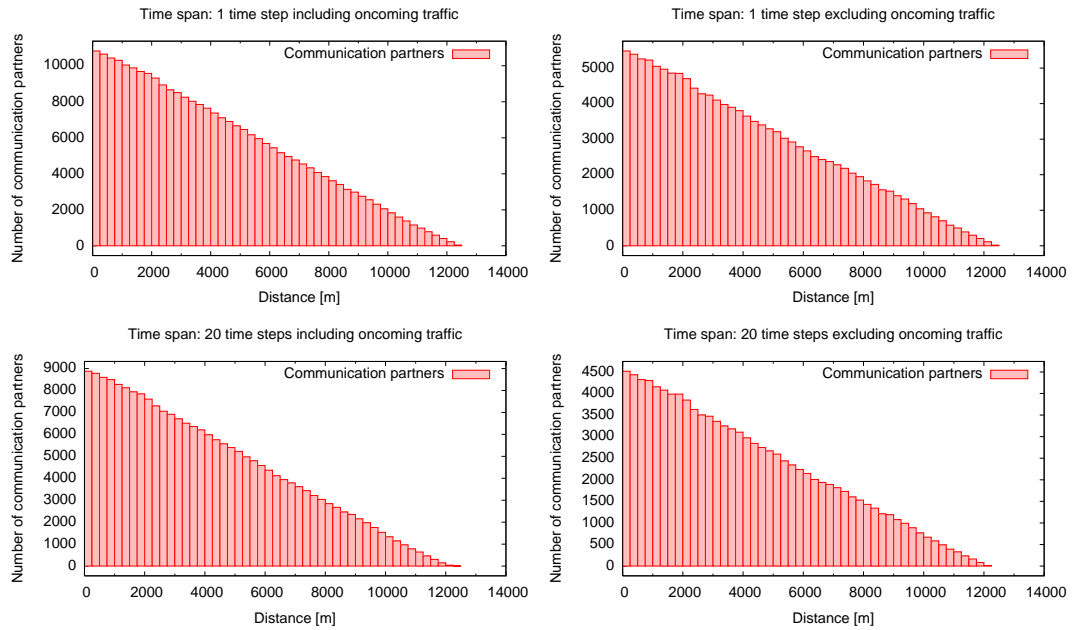
Average:	61.04
Variance:	95.97
Standard deviation:	9.80

A.22.4. Communication partner histogram

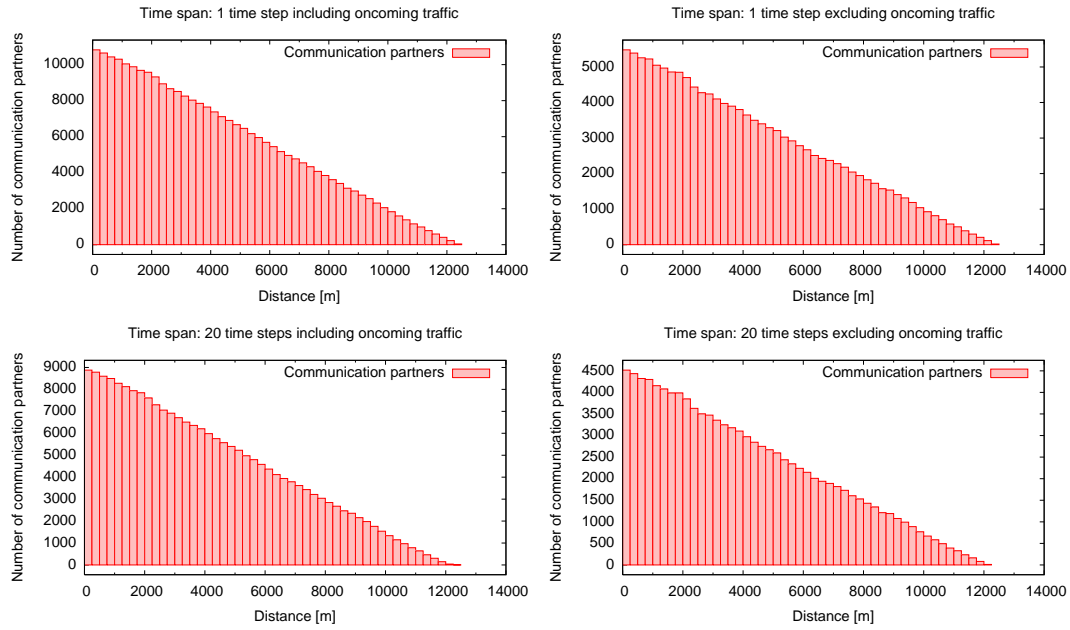
Radio range: 250.0 meters, bin size: 250.0 meters



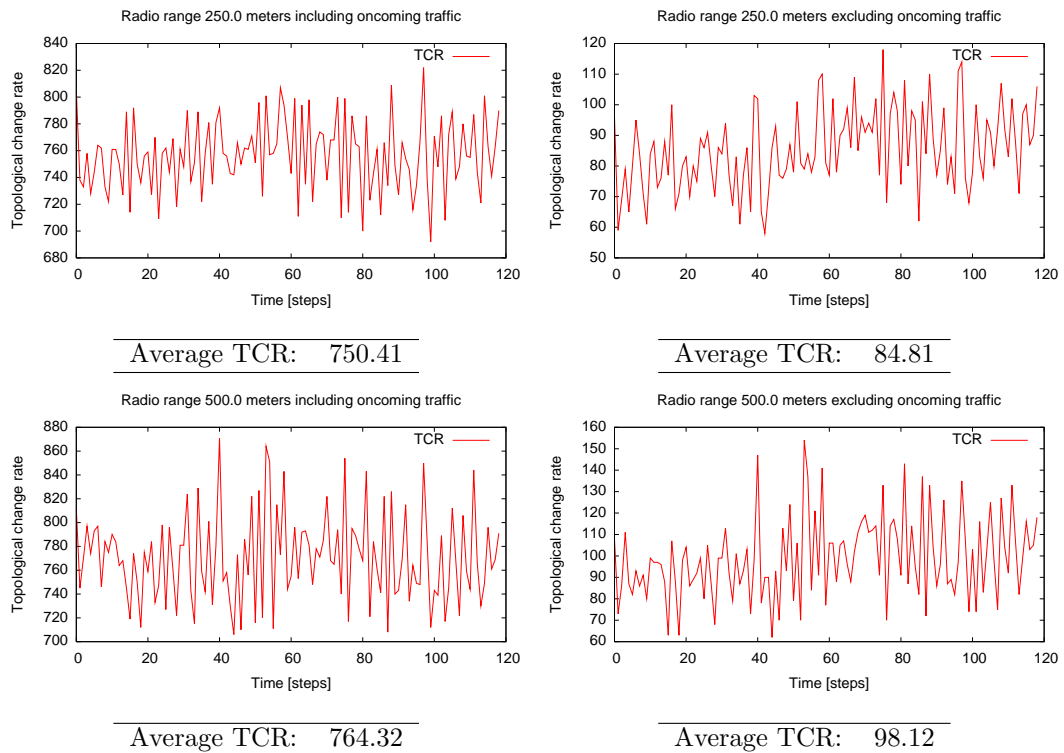
Radio range: 500.0 meters, bin size: 250.0 meters

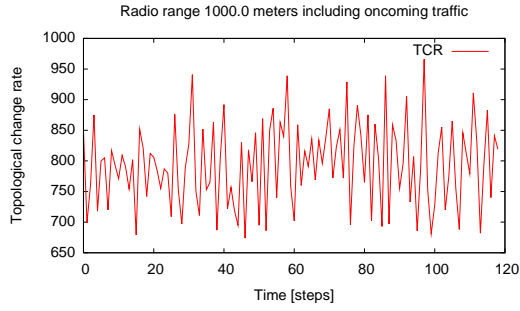


Radio range: 1000.0 meters, bin size: 250.0 meters

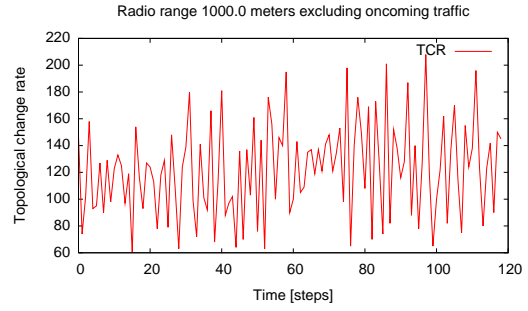


A.22.5. Topological Change Rate (TCR)



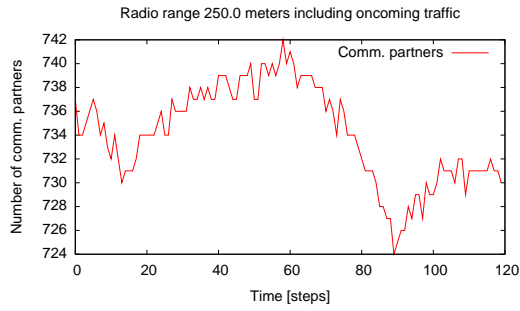


Average TCR: 787.73

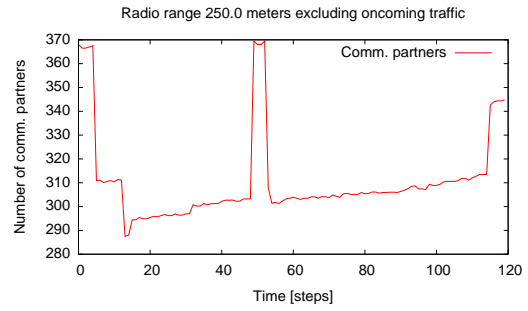


Average TCR: 121.24

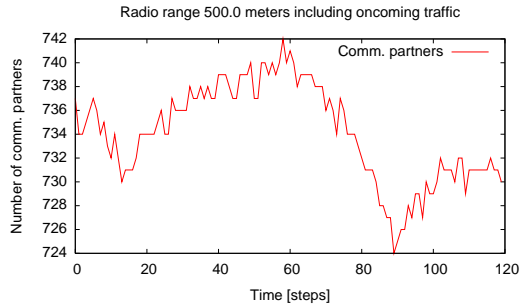
A.22.6. Total number of communication partners



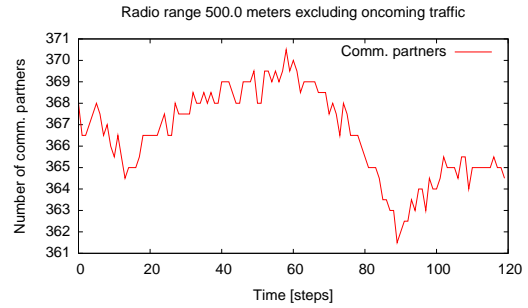
Avg. comm. partners: 734.12
Avg. active nodes: 735.12



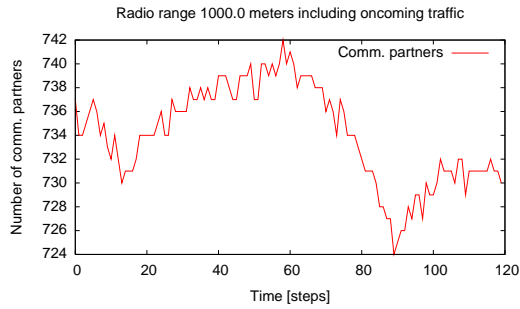
Avg. comm. partners: 310.58
Avg. active nodes: 735.12



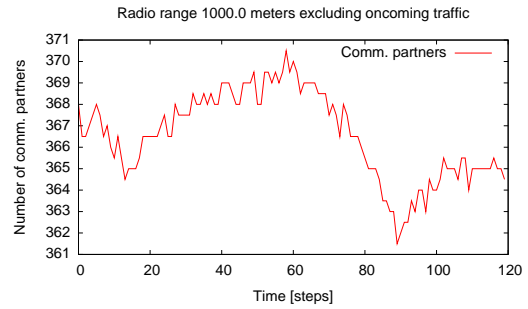
Avg. comm. partners: 734.12
Avg. active nodes: 735.12



Avg. comm. partners: 366.56
Avg. active nodes: 735.12

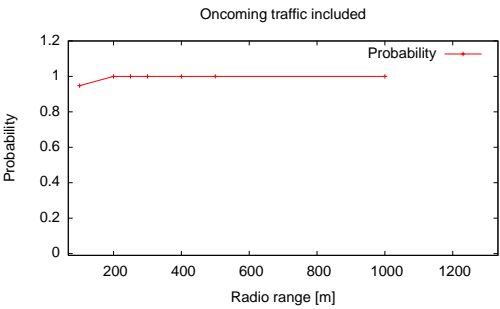


Avg. comm. partners: 734.12
Avg. active nodes: 735.12

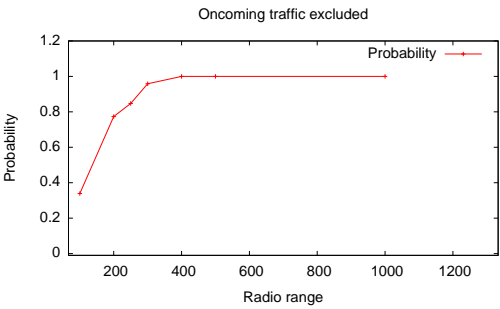


Avg. comm. partners: 366.56
Avg. active nodes: 735.12

A.22.7. Probability of being able to communicate with an arbitrary node



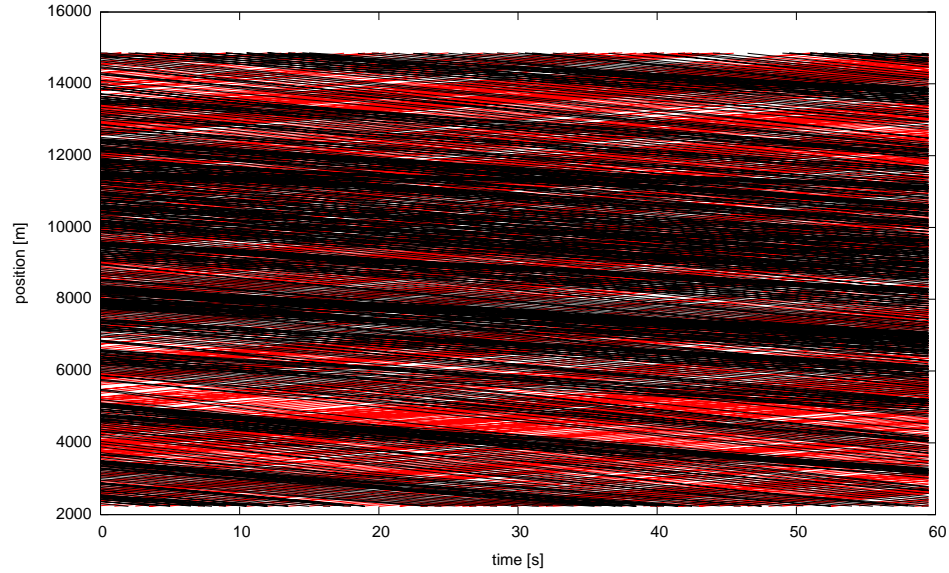
100.0 m:	0.95
200.0 m:	1.00
250.0 m:	1.00
300.0 m:	1.00
400.0 m:	1.00
500.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.34
200.0 m:	0.77
250.0 m:	0.85
300.0 m:	0.96
400.0 m:	1.00
500.0 m:	1.00
1000.0 m:	1.00

A.23. Scenario “mvmnt-hwgui-02lpd-15-15npkm-03.txt”

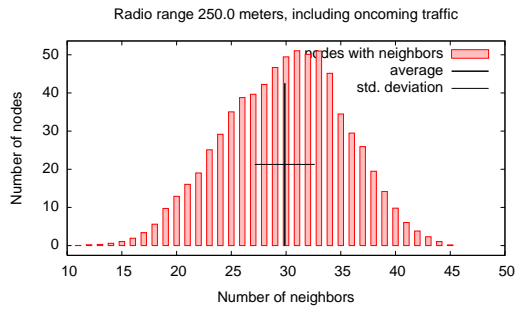
A.23.1. Trajectory plot



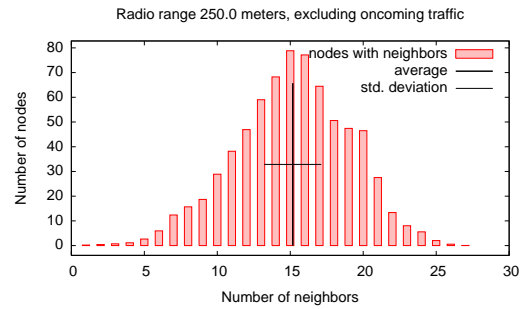
A.23.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	30.99
Number of nodes	857
Number of nodes (up)	443
Number of nodes (down)	414
Average node density [N/km]	59.28
Nodes per km and lane (up) [$N/(km \cdot lane)$]	15
Nodes per km and lane (down) [$N/(km \cdot lane)$]	15
Average number of active nodes	749.07
Average number of active nodes (up)	389.01
Average number of active nodes (down)	360.06
Number of lanes (up)	2
Length of valid area [m]	12636.60
Valid area start [m]	2228.80
Valid area end [m]	14865.40
Maximum CTR (both dirs) [m]	127.22

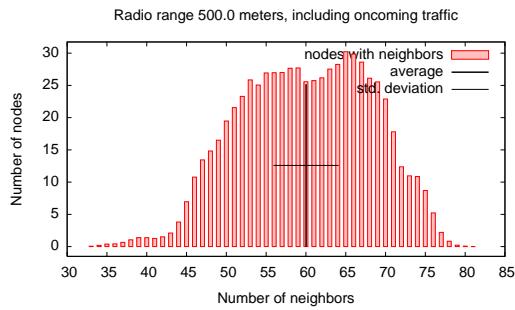
A.23.3. Neighbor histogram



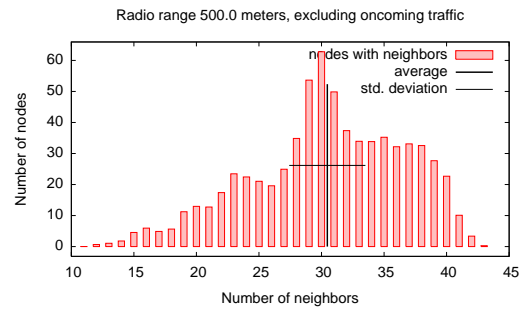
Average:	29.89
Variance:	29.95
Standard deviation:	5.47



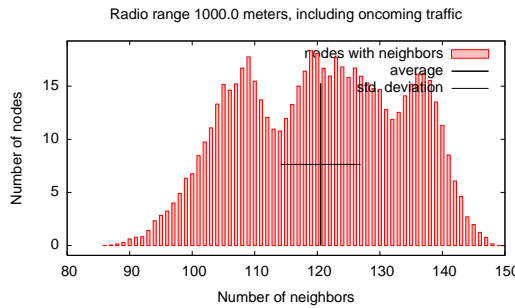
Average:	15.17
Variance:	15.24
Standard deviation:	3.90



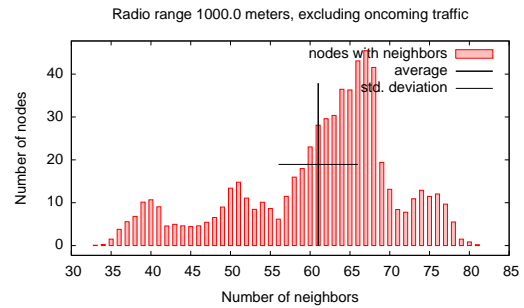
Average:	60.02
Variance:	66.97
Standard deviation:	8.18



Average:	30.47
Variance:	37.12
Standard deviation:	6.09



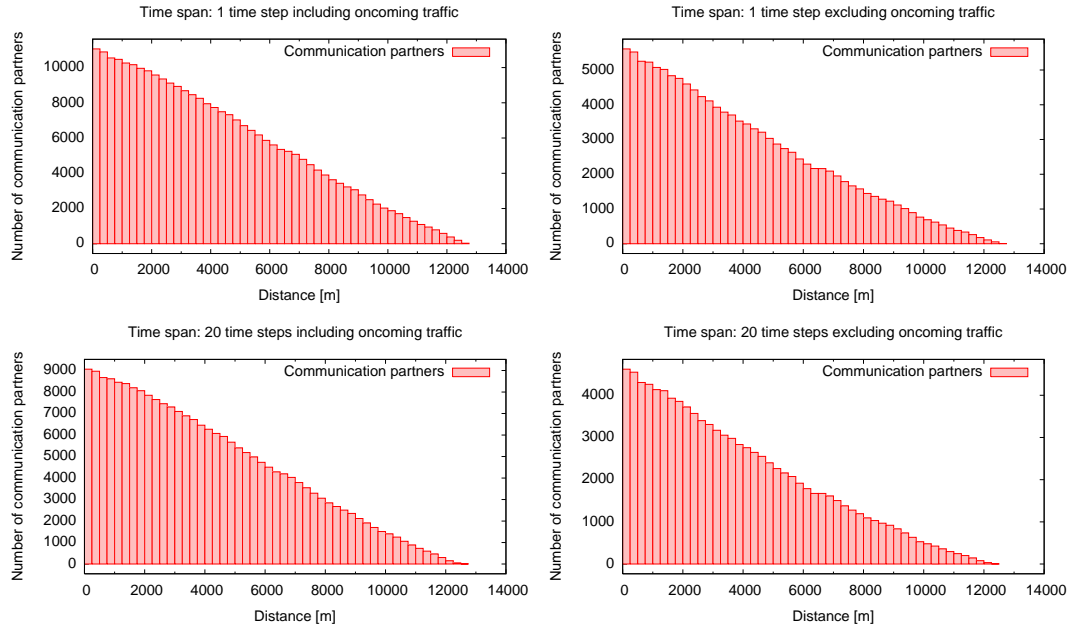
Average:	120.53
Variance:	162.90
Standard deviation:	12.76



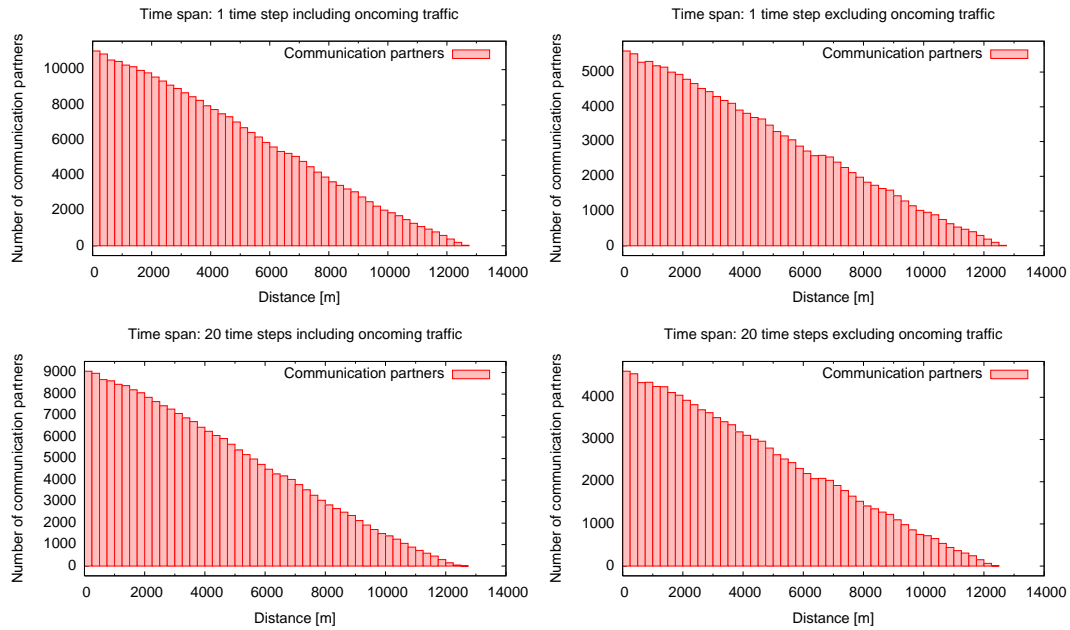
Average:	61.01
Variance:	99.45
Standard deviation:	9.97

A.23.4. Communication partner histogram

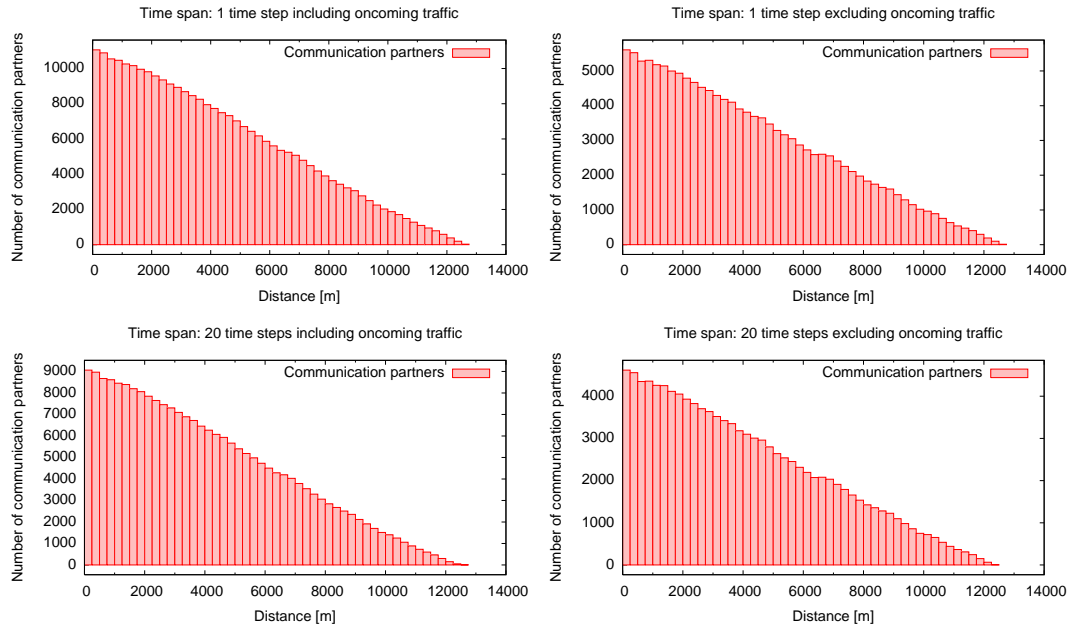
Radio range: 250.0 meters, bin size: 250.0 meters



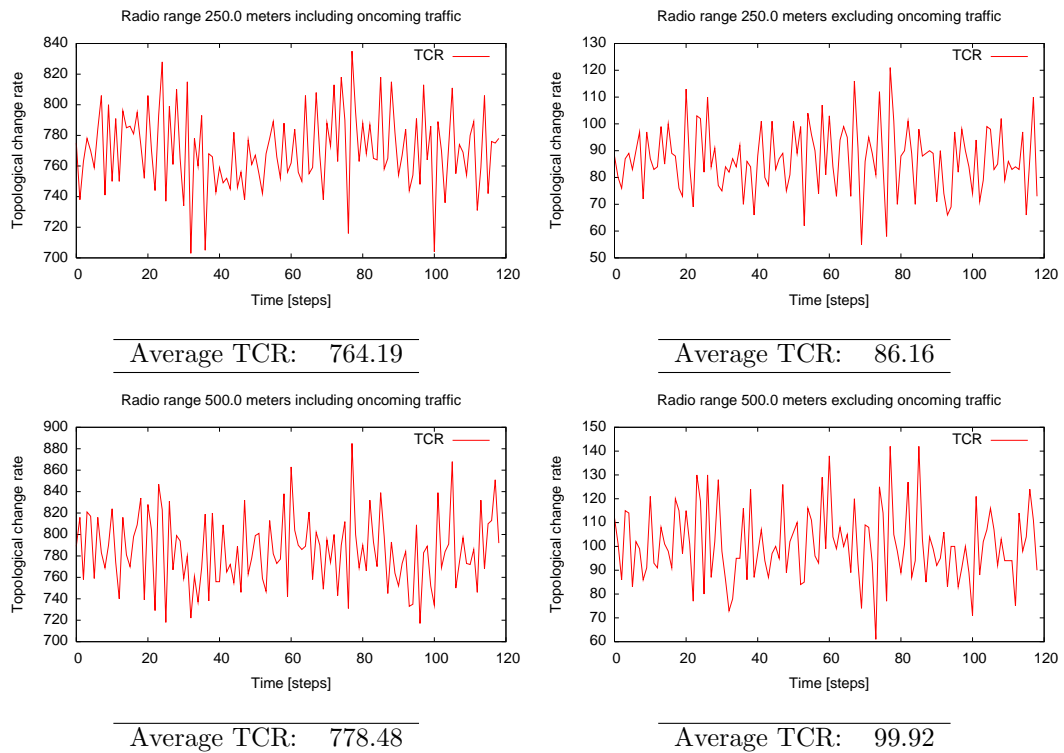
Radio range: 500.0 meters, bin size: 250.0 meters

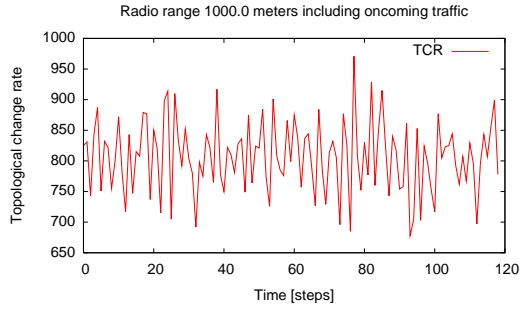


Radio range: 1000.0 meters, bin size: 250.0 meters

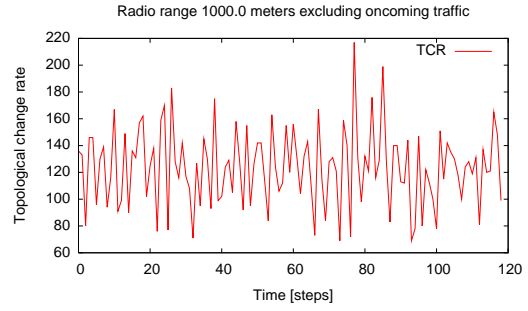


A.23.5. Topological Change Rate (TCR)



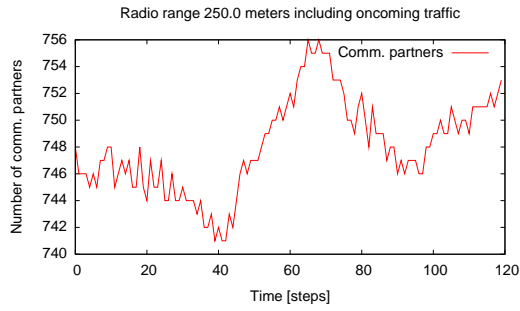


Average TCR: 800.21

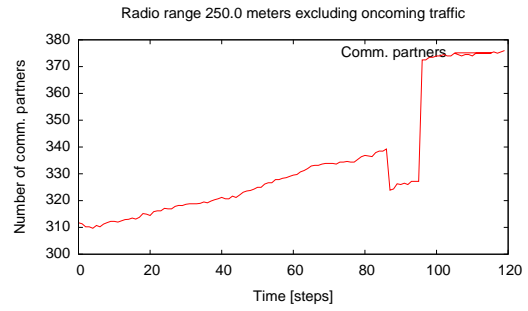


Average TCR: 122.60

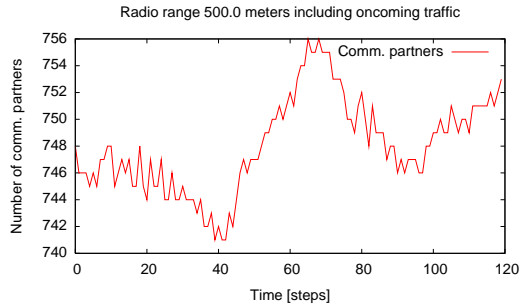
A.23.6. Total number of communication partners



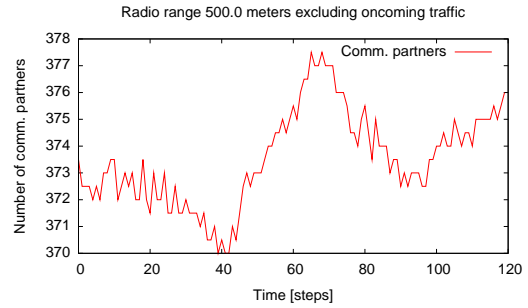
Avg. comm. partners: 748.07
Avg. active nodes: 749.07



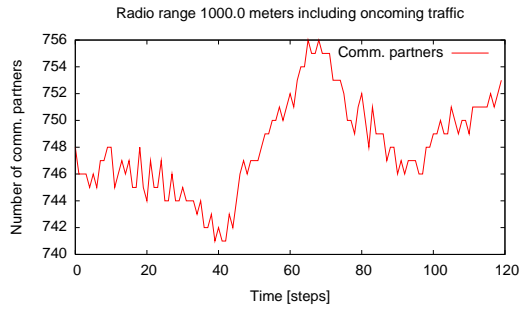
Avg. comm. partners: 333.73
Avg. active nodes: 749.07



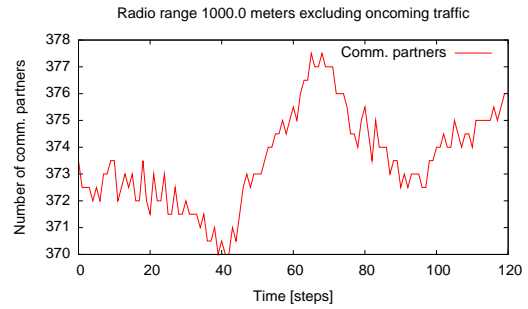
Avg. comm. partners: 748.07
Avg. active nodes: 749.07



Avg. comm. partners: 373.53
Avg. active nodes: 749.07

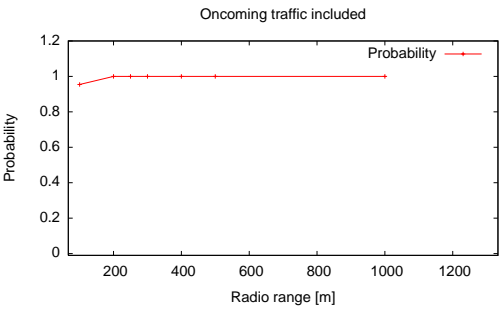


Avg. comm. partners: 748.07
Avg. active nodes: 749.07

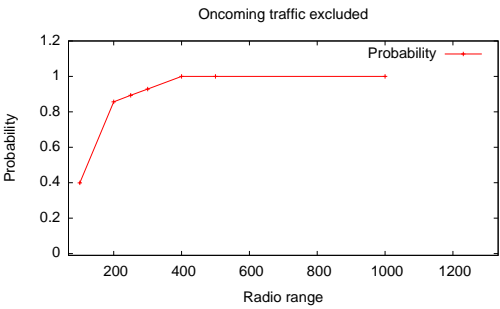


Avg. comm. partners: 373.53
Avg. active nodes: 749.07

A.23.7. Probability of being able to communicate with an arbitrary node



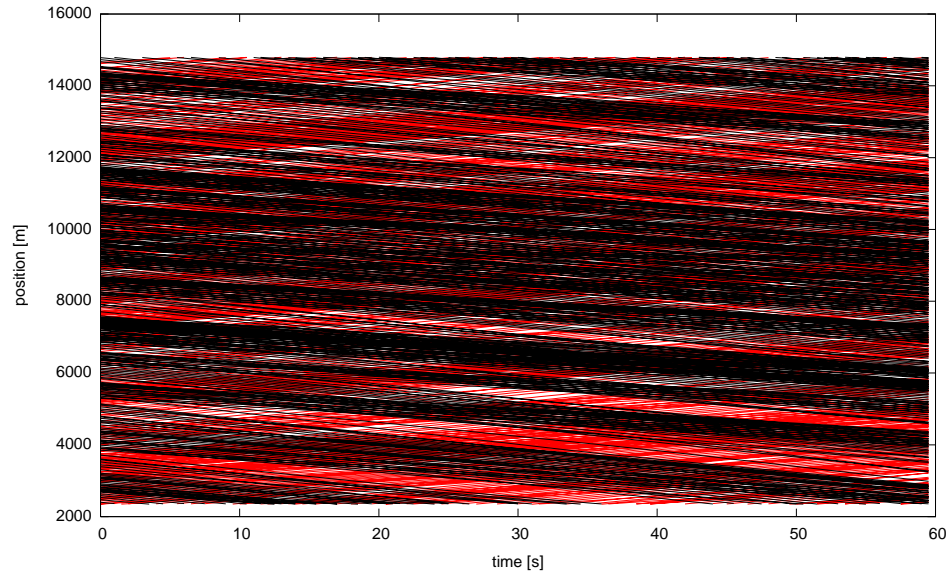
100.0 m:	0.95
200.0 m:	1.00
250.0 m:	1.00
300.0 m:	1.00
400.0 m:	1.00
500.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.40
200.0 m:	0.86
250.0 m:	0.89
300.0 m:	0.93
400.0 m:	1.00
500.0 m:	1.00
1000.0 m:	1.00

A.24. Scenario “mvmnt-hwgui-02lpd-15-15npkm-04.txt”

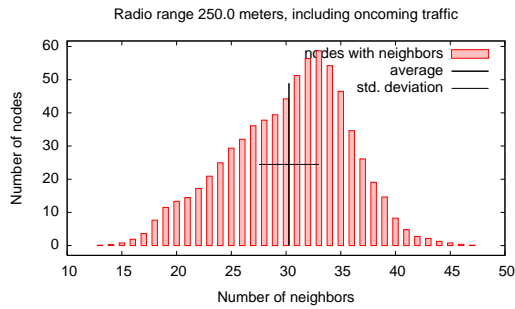
A.24.1. Trajectory plot



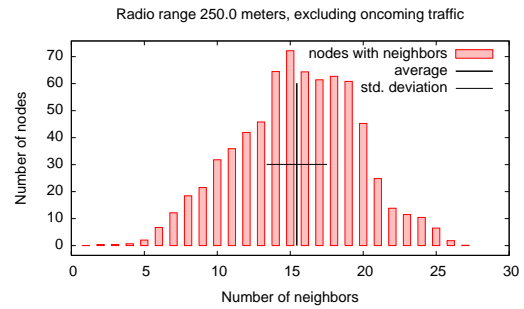
A.24.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	30.79
Number of nodes	849
Number of nodes (up)	435
Number of nodes (down)	414
Average node density [N/km]	59.83
Nodes per km and lane (up) [$N/(km \cdot lane)$]	15
Nodes per km and lane (down) [$N/(km \cdot lane)$]	15
Average number of active nodes	744.94
Average number of active nodes (up)	385.52
Average number of active nodes (down)	359.43
Number of lanes (up)	2
Length of valid area [m]	12451.10
Valid area start [m]	2345.60
Valid area end [m]	14796.70
Maximum CTR (both dirs) [m]	135.92

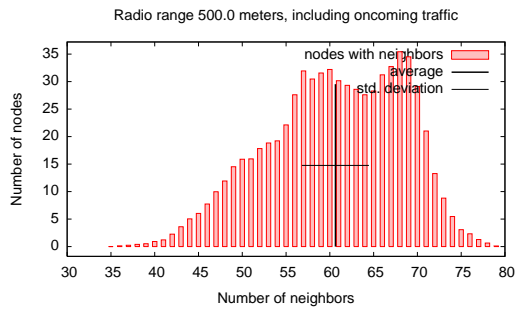
A.24.3. Neighbor histogram



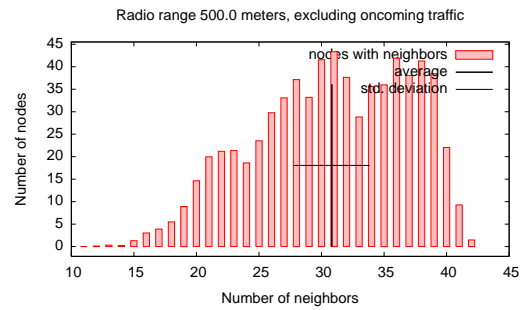
Average:	30.27
Variance:	30.02
Standard deviation:	5.48



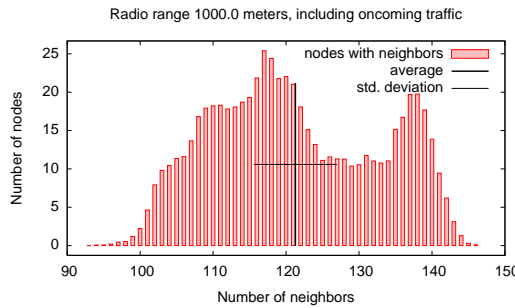
Average:	15.45
Variance:	17.12
Standard deviation:	4.14



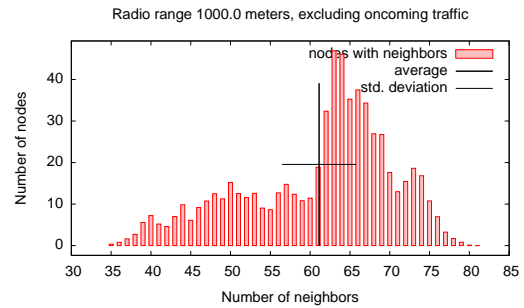
Average:	60.64
Variance:	58.65
Standard deviation:	7.66



Average:	30.83
Variance:	36.79
Standard deviation:	6.07



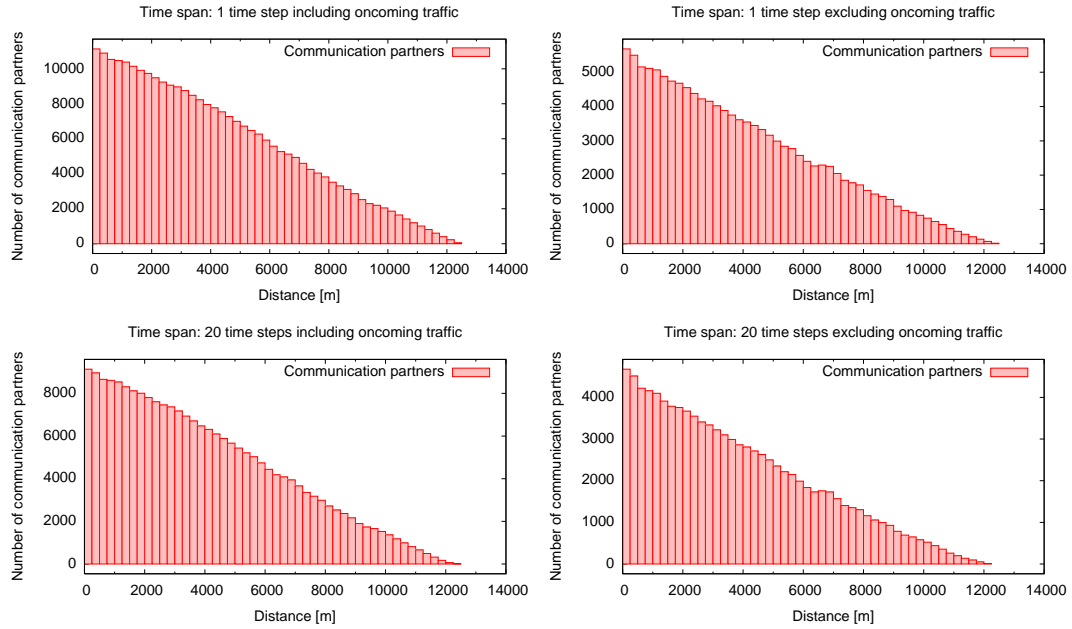
Average:	121.29
Variance:	129.75
Standard deviation:	11.39



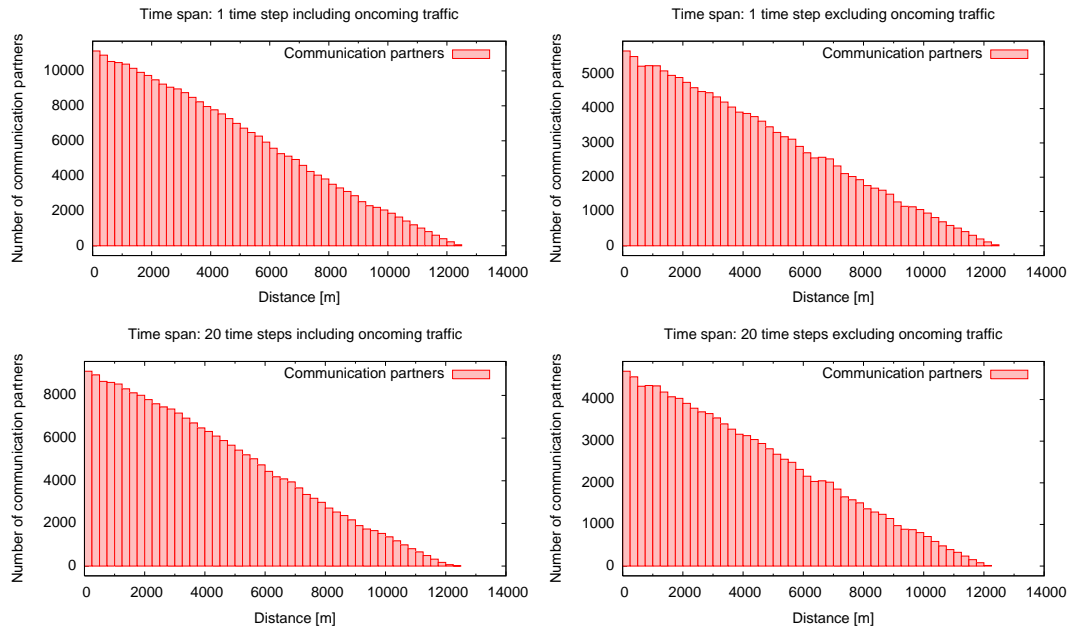
Average:	61.12
Variance:	87.11
Standard deviation:	9.33

A.24.4. Communication partner histogram

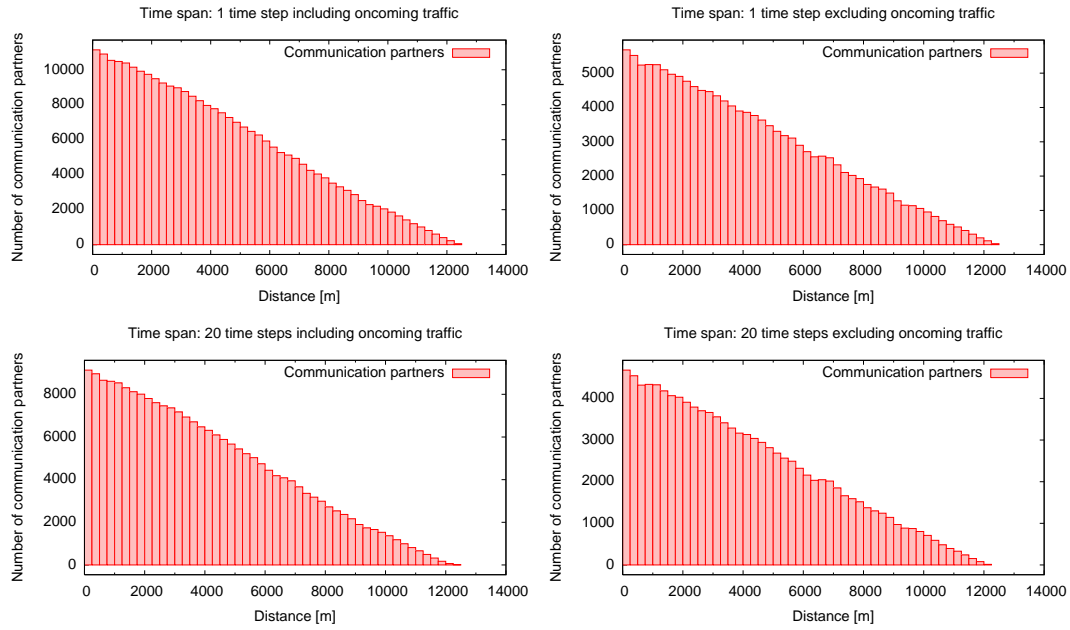
Radio range: 250.0 meters, bin size: 250.0 meters



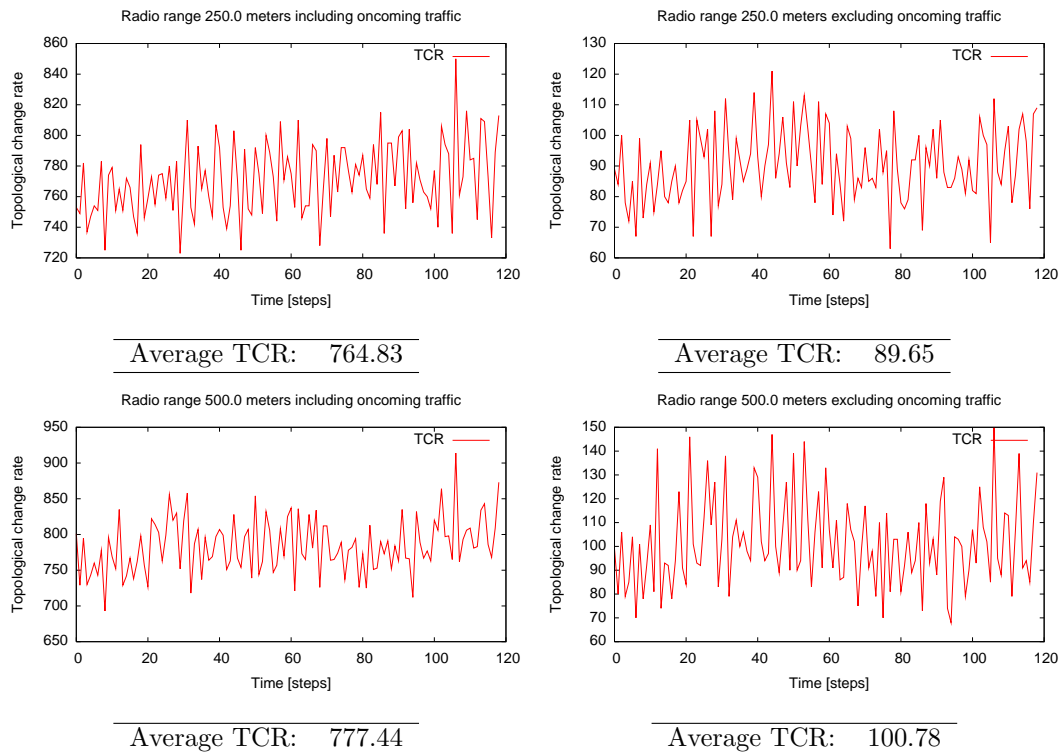
Radio range: 500.0 meters, bin size: 250.0 meters

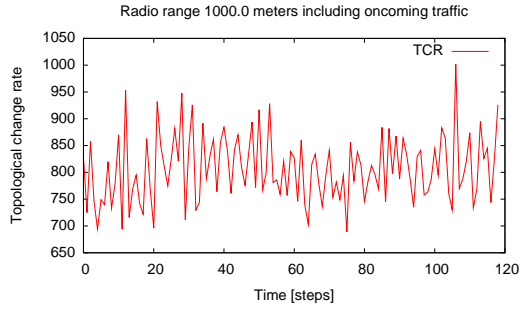


Radio range: 1000.0 meters, bin size: 250.0 meters

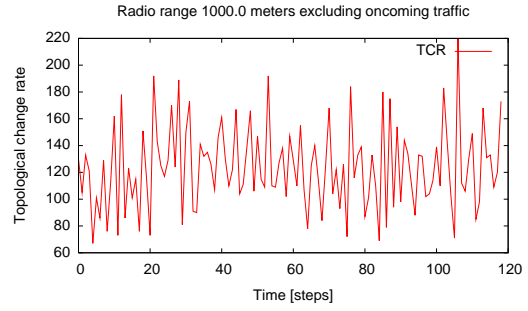


A.24.5. Topological Change Rate (TCR)



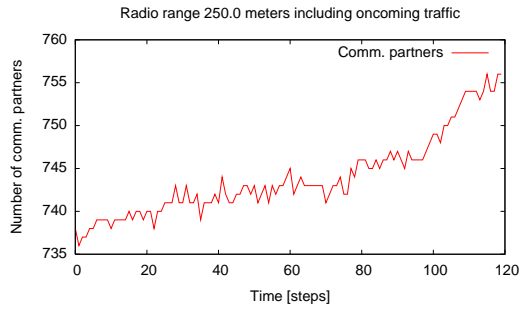


Average TCR: 799.94

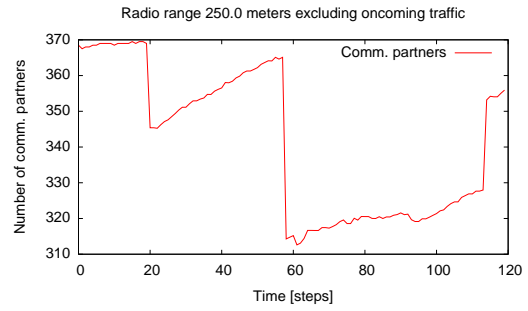


Average TCR: 122.78

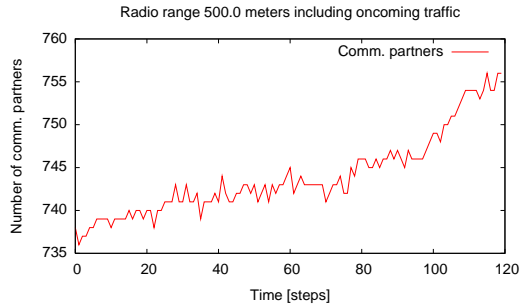
A.24.6. Total number of communication partners



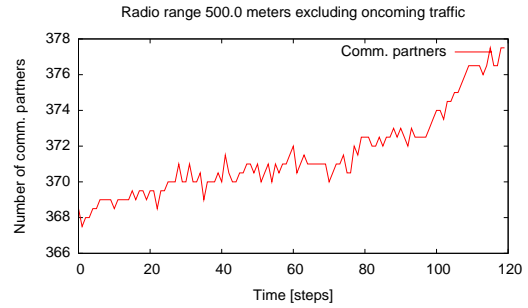
Avg. comm. partners: 743.94
Avg. active nodes: 744.94



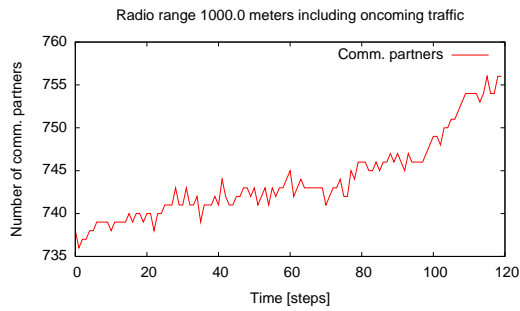
Avg. comm. partners: 341.32
Avg. active nodes: 744.94



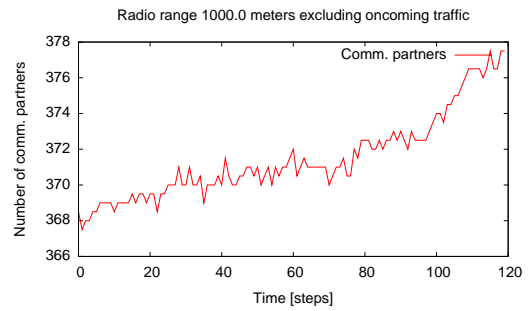
Avg. comm. partners: 743.94
Avg. active nodes: 744.94



Avg. comm. partners: 371.47
Avg. active nodes: 744.94

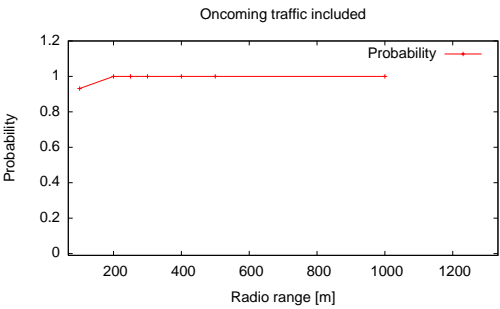


Avg. comm. partners: 743.94
Avg. active nodes: 744.94

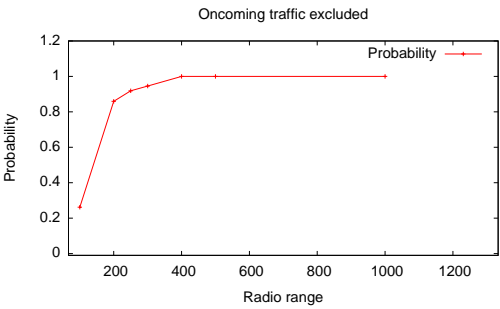


Avg. comm. partners: 371.47
Avg. active nodes: 744.94

A.24.7. Probability of being able to communicate with an arbitrary node



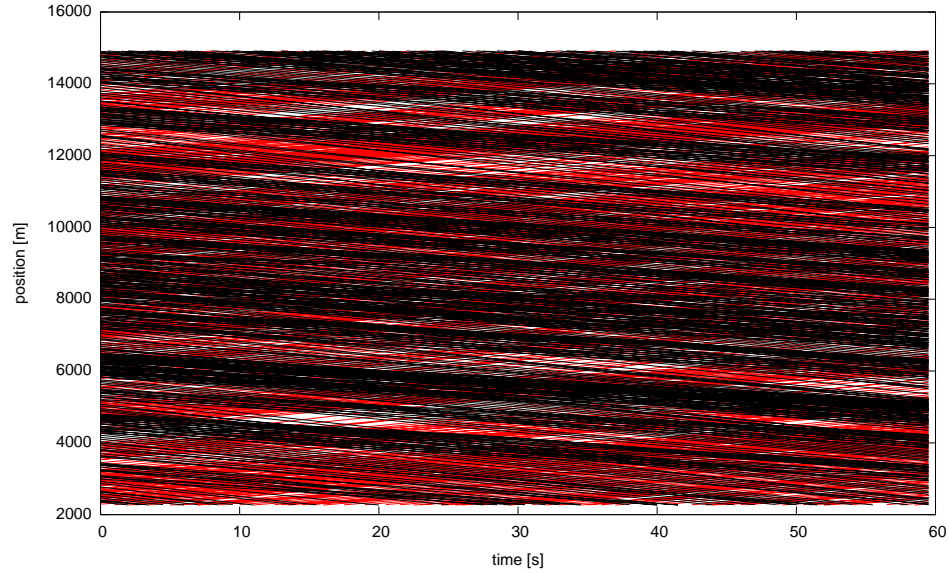
100.0 m:	0.93
200.0 m:	1.00
250.0 m:	1.00
300.0 m:	1.00
400.0 m:	1.00
500.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.26
200.0 m:	0.86
250.0 m:	0.92
300.0 m:	0.95
400.0 m:	1.00
500.0 m:	1.00
1000.0 m:	1.00

A.25. Scenario “mvmnt-hwgui-02lpd-15-15npkm-05.txt”

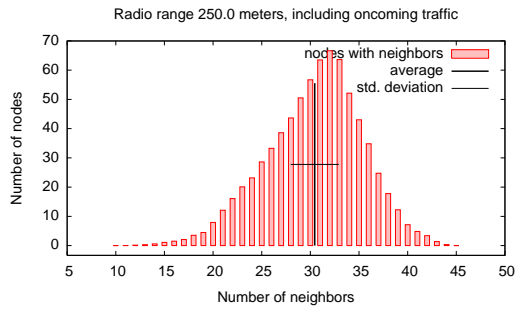
A.25.1. Trajectory plot



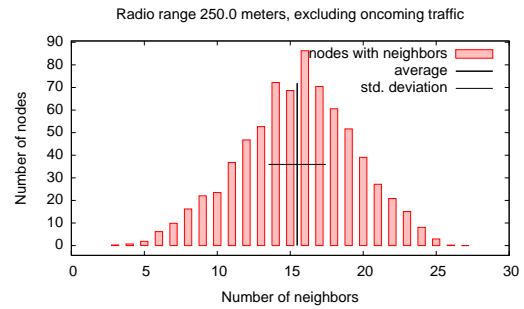
A.25.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	30.90
Number of nodes	866
Number of nodes (up)	437
Number of nodes (down)	429
Average node density [N/km]	60.73
Nodes per km and lane (up) [$N/(km \cdot lane)$]	15
Nodes per km and lane (down) [$N/(km \cdot lane)$]	15
Average number of active nodes	768.49
Average number of active nodes (up)	389.84
Average number of active nodes (down)	378.65
Number of lanes (up)	2
Length of valid area [m]	12654.80
Valid area start [m]	2265.70
Valid area end [m]	14920.50
Maximum CTR (both dirs) [m]	179.64

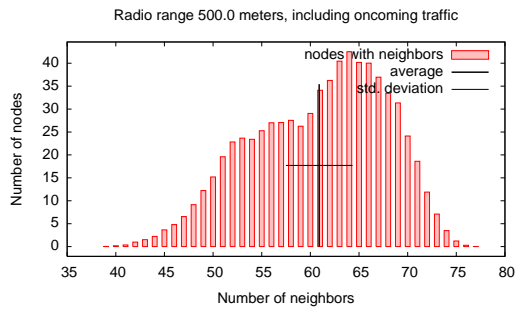
A.25.3. Neighbor histogram



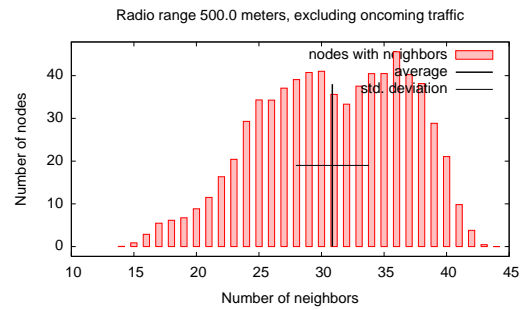
Average:	30.45
Variance:	24.40
Standard deviation:	4.94



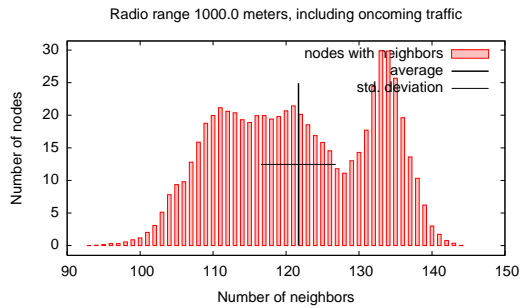
Average:	15.48
Variance:	15.41
Standard deviation:	3.93



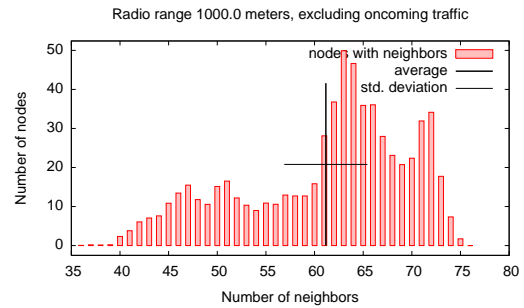
Average:	60.91
Variance:	47.03
Standard deviation:	6.86



Average:	30.87
Variance:	34.08
Standard deviation:	5.84



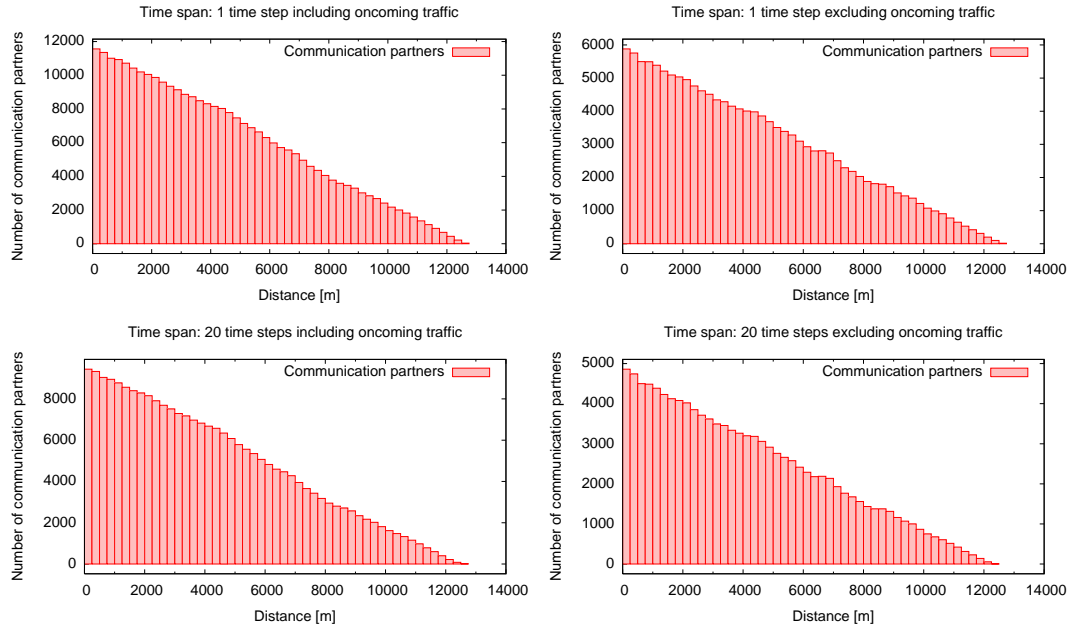
Average:	121.71
Variance:	105.03
Standard deviation:	10.25



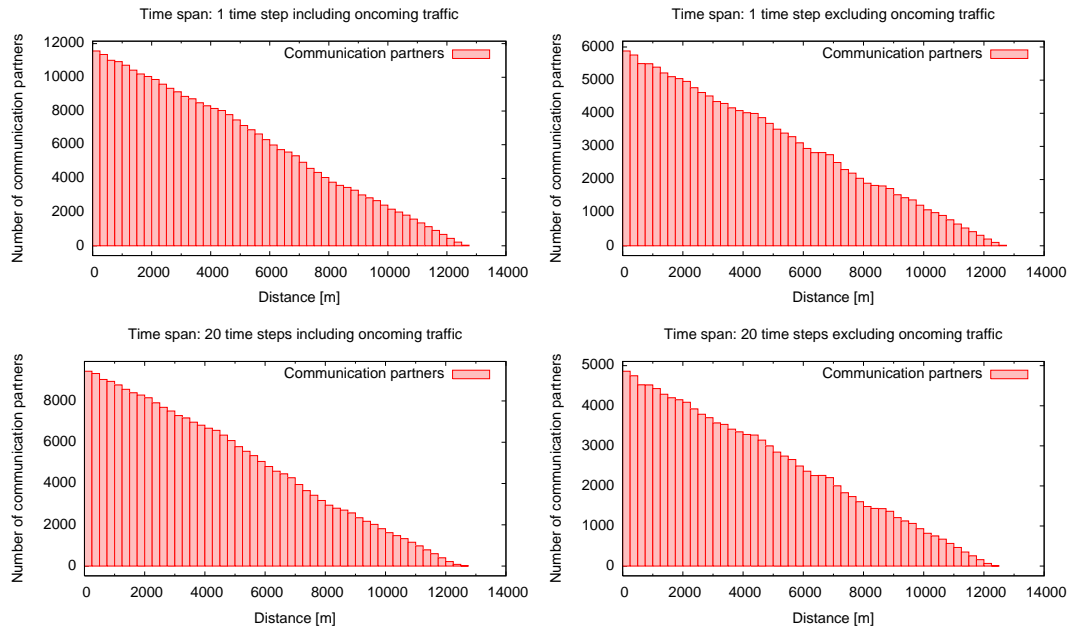
Average:	61.16
Variance:	73.04
Standard deviation:	8.55

A.25.4. Communication partner histogram

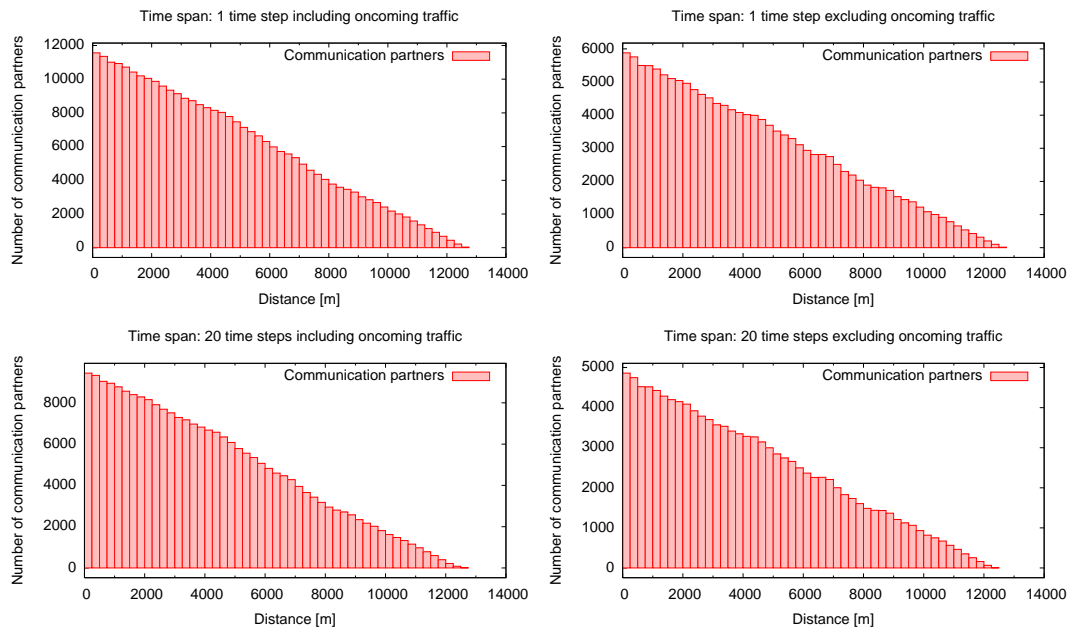
Radio range: 250.0 meters, bin size: 250.0 meters



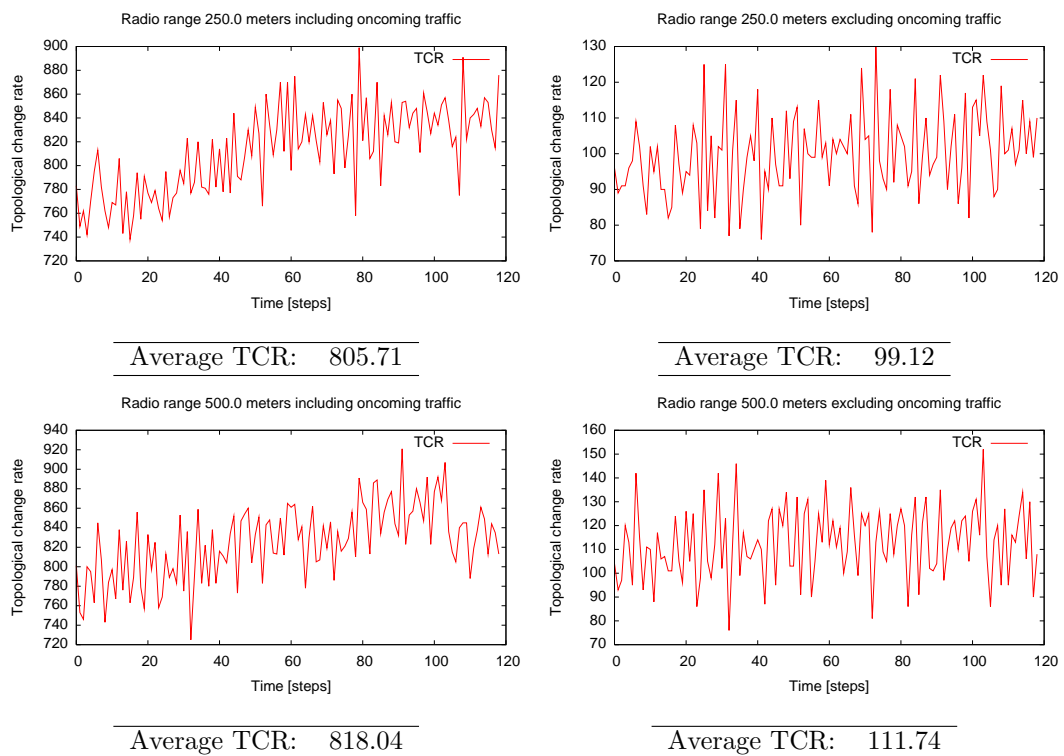
Radio range: 500.0 meters, bin size: 250.0 meters

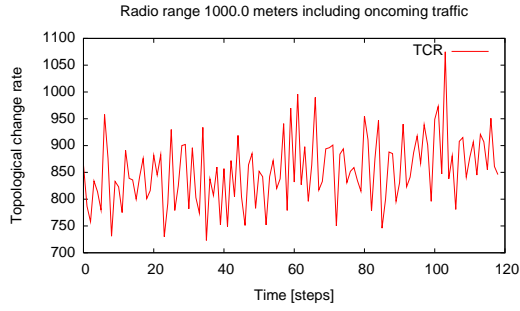


Radio range: 1000.0 meters, bin size: 250.0 meters

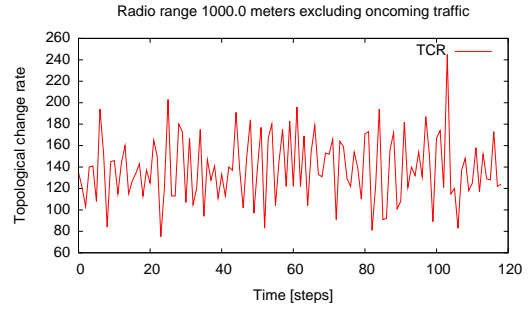


A.25.5. Topological Change Rate (TCR)



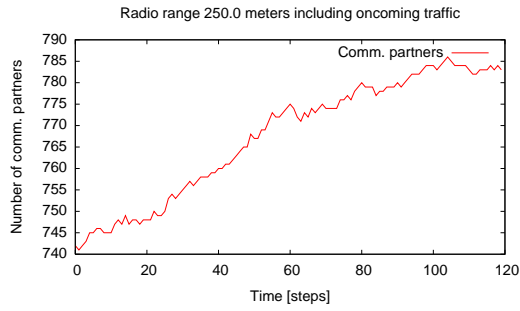


Average TCR: 846.13

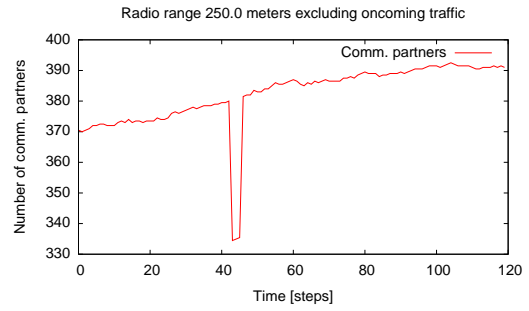


Average TCR: 137.39

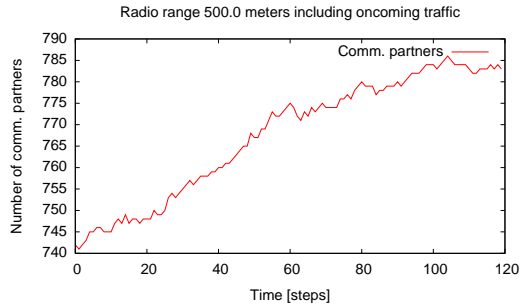
A.25.6. Total number of communication partners



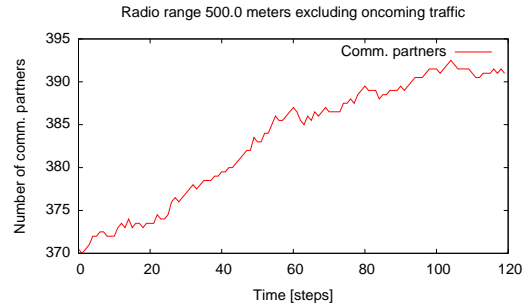
Avg. comm. partners: 767.49
Avg. active nodes: 768.49



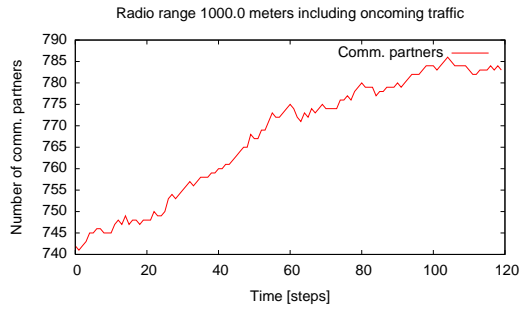
Avg. comm. partners: 382.11
Avg. active nodes: 768.49



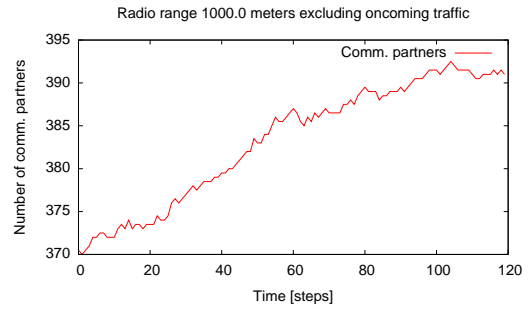
Avg. comm. partners: 767.49
Avg. active nodes: 768.49



Avg. comm. partners: 383.25
Avg. active nodes: 768.49

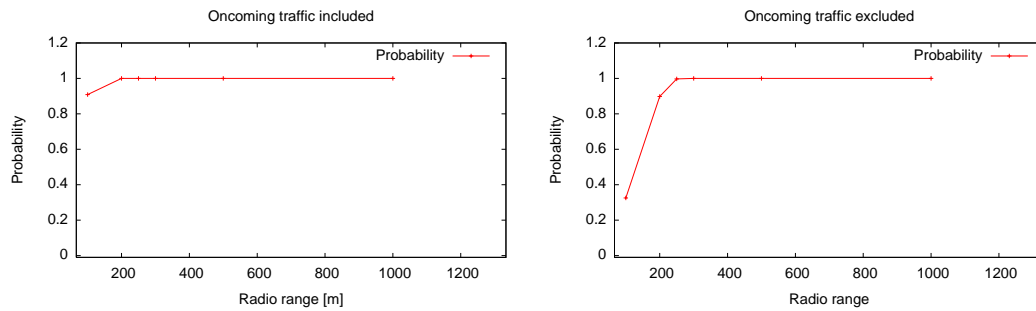


Avg. comm. partners: 767.49
Avg. active nodes: 768.49



Avg. comm. partners: 383.25
Avg. active nodes: 768.49

A.25.7. Probability of being able to communicate with an arbitrary node



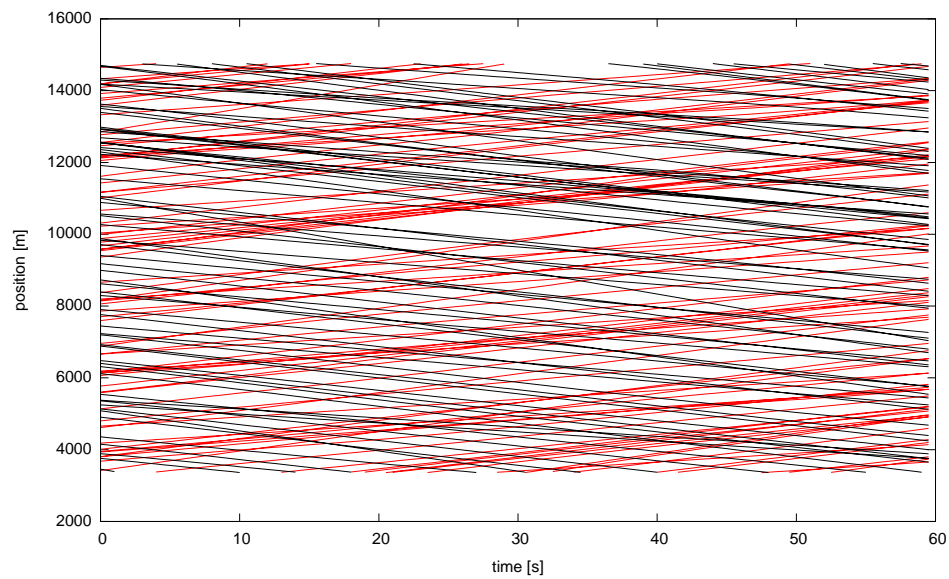
100.0 m:	0.91
200.0 m:	1.00
250.0 m:	1.00
300.0 m:	1.00
500.0 m:	1.00
1000.0 m:	1.00

100.0 m:	0.33
200.0 m:	0.90
250.0 m:	1.00
300.0 m:	1.00
500.0 m:	1.00
1000.0 m:	1.00

B. Three lanes per direction

B.1. Scenario “mvmnt-hwgui-03lpd-02-02npkm-01.txt”

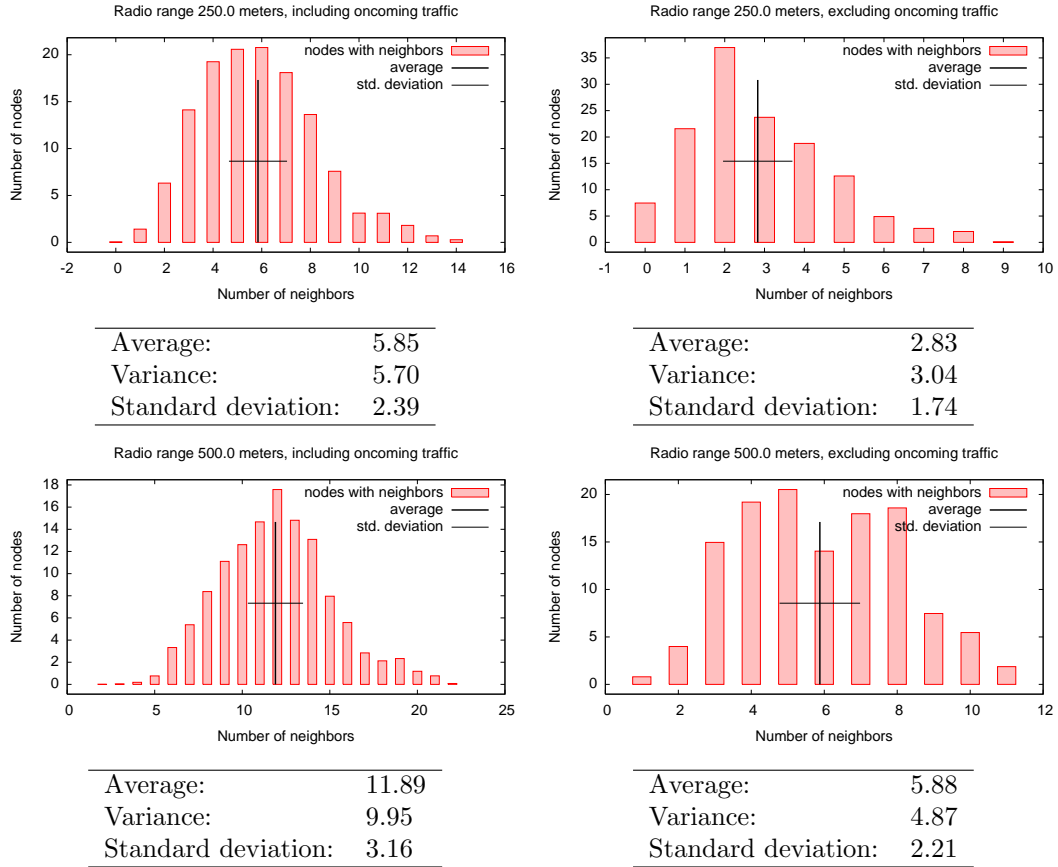
B.1.1. Trajectory plot

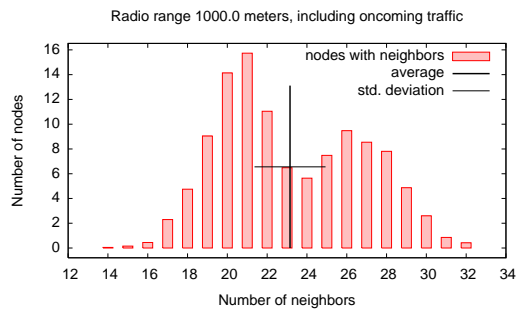


B.1.2. Single value statistics

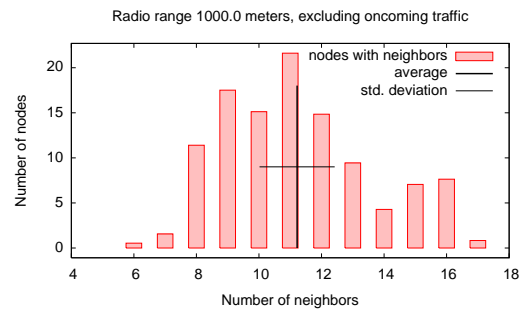
Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	39.38
Number of nodes	167
Number of nodes (up)	86
Number of nodes (down)	81
Average node density [N/km]	12.00
Nodes per km and lane (up) [$N/(km \cdot lane)$]	2
Nodes per km and lane (down) [$N/(km \cdot lane)$]	2
Average number of active nodes	136.74
Average number of active nodes (up)	71.09
Average number of active nodes (down)	65.65
Number of lanes (up)	3
Length of valid area [m]	11398.10
Valid area start [m]	3359.20
Valid area end [m]	14757.30
Maximum CTR (both dirs) [m]	732.20

B.1.3. Neighbor histogram





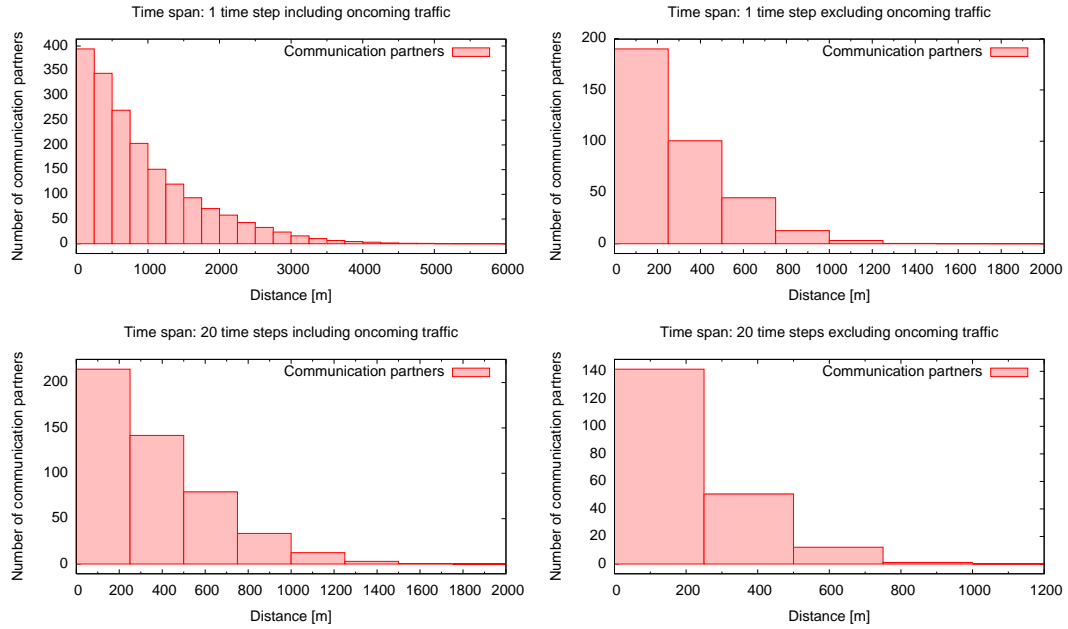
Average:	23.15
Variance:	12.75
Standard deviation:	3.57



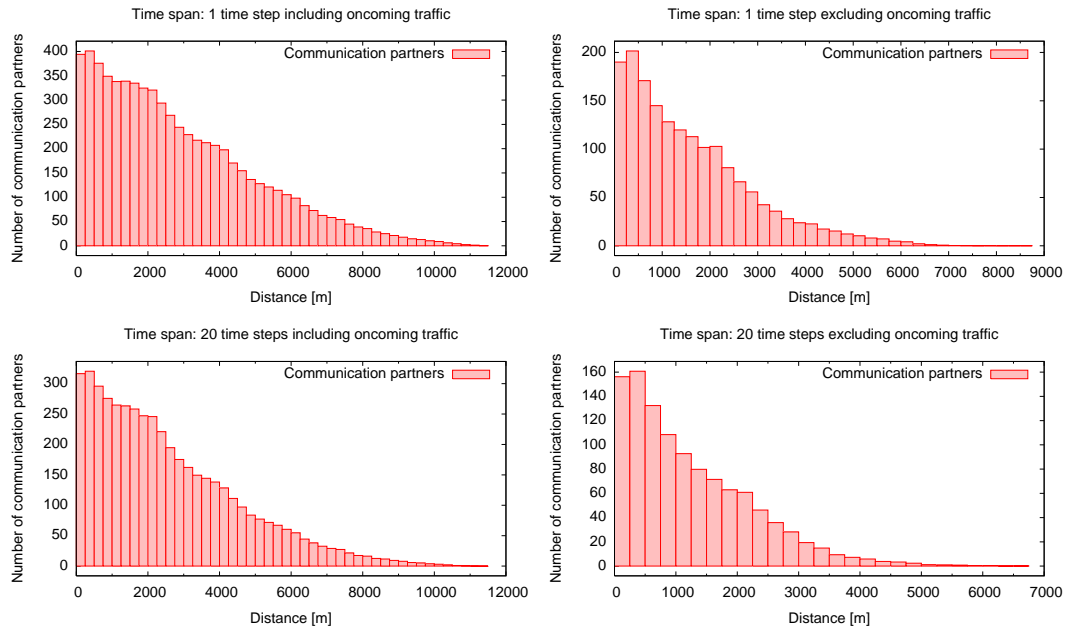
Average:	11.22
Variance:	5.77
Standard deviation:	2.40

B.1.4. Communication partner histogram

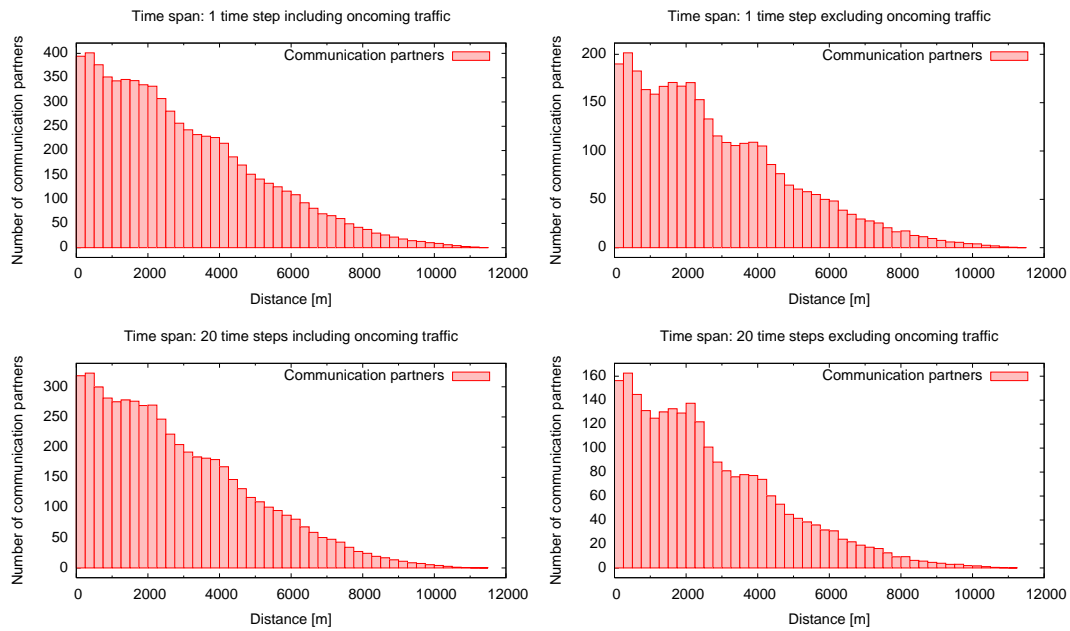
Radio range: 250.0 meters, bin size: 250.0 meters



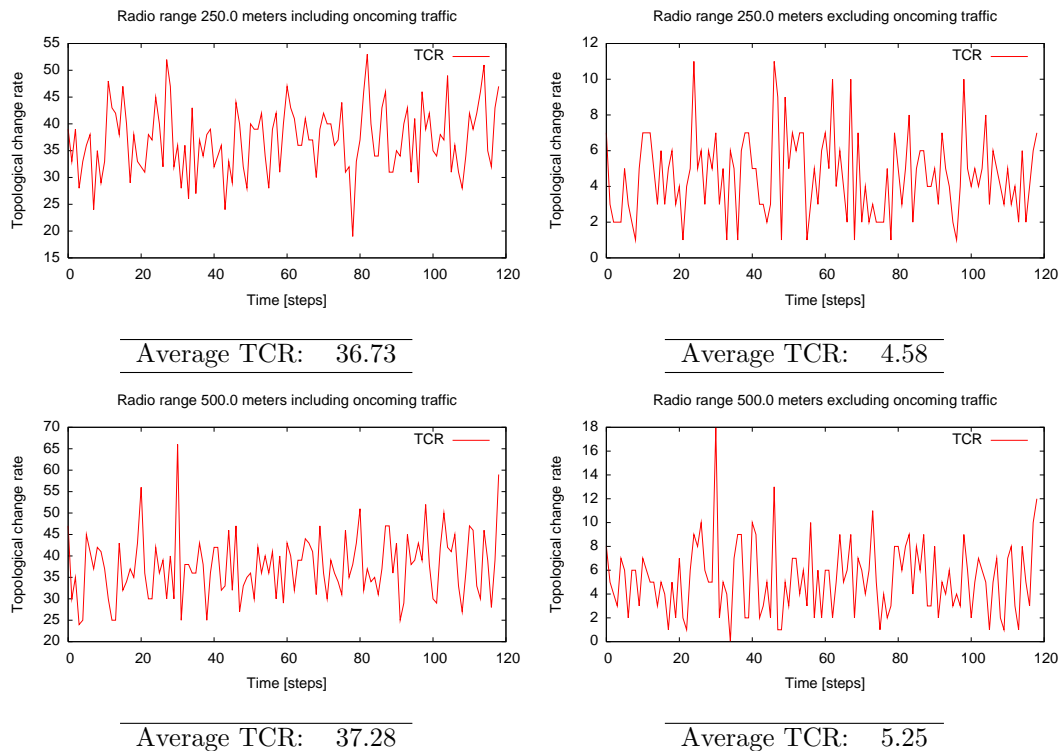
Radio range: 500.0 meters, bin size: 250.0 meters

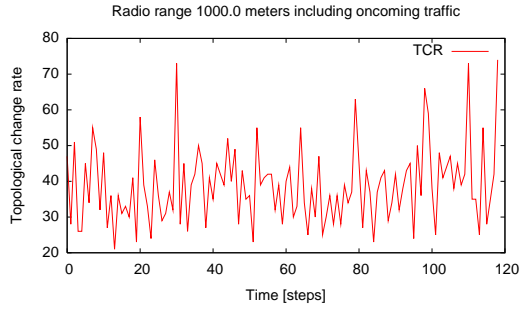


Radio range: 1000.0 meters, bin size: 250.0 meters

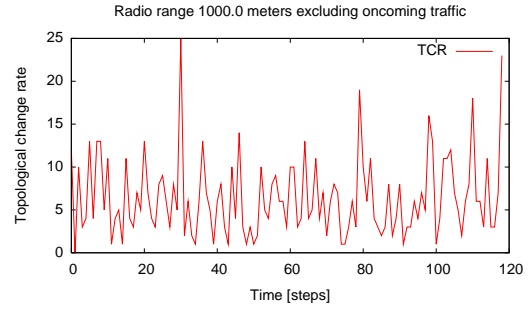


B.1.5. Topological Change Rate (TCR)



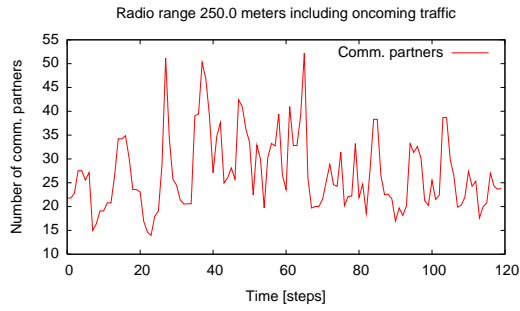


Average TCR: 38.50

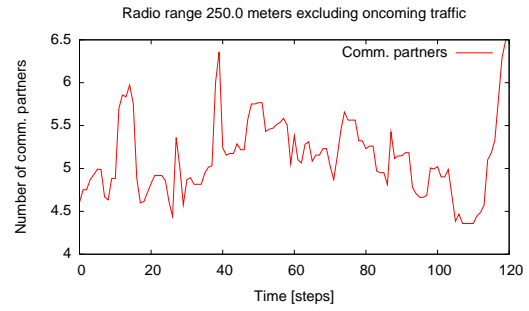


Average TCR: 6.36

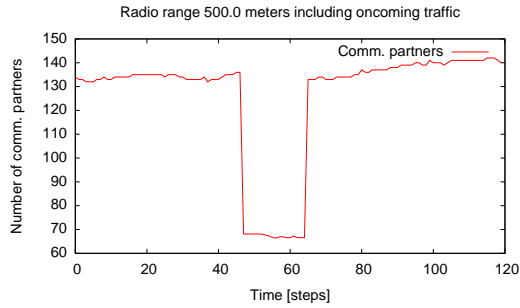
B.1.6. Total number of communication partners



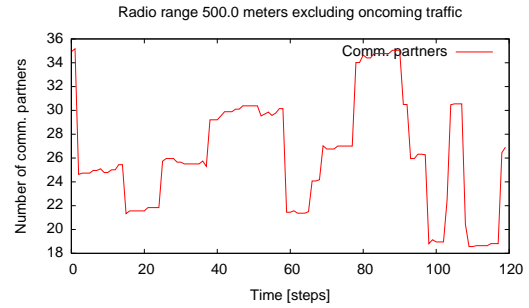
Avg. comm. partners: 27.09
Avg. active nodes: 136.74



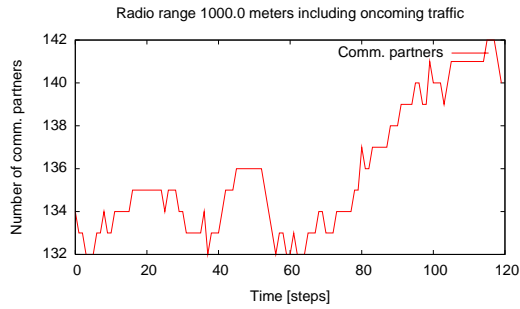
Avg. comm. partners: 5.11
Avg. active nodes: 136.74



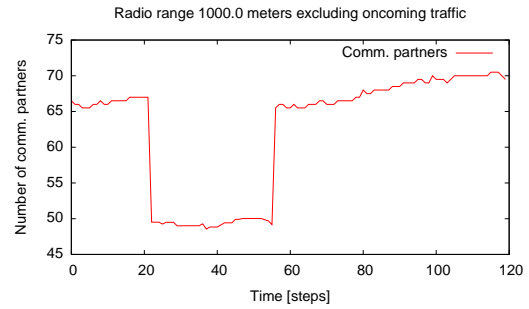
Avg. comm. partners: 125.76
Avg. active nodes: 136.74



Avg. comm. partners: 26.34
Avg. active nodes: 136.74

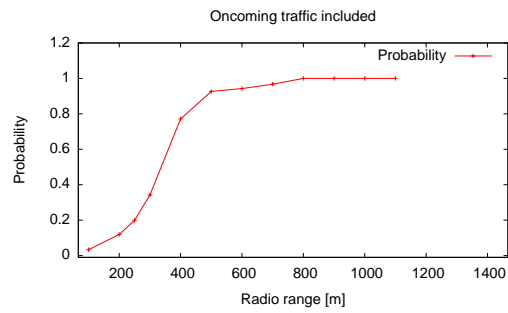


Avg. comm. partners: 135.74
Avg. active nodes: 136.74

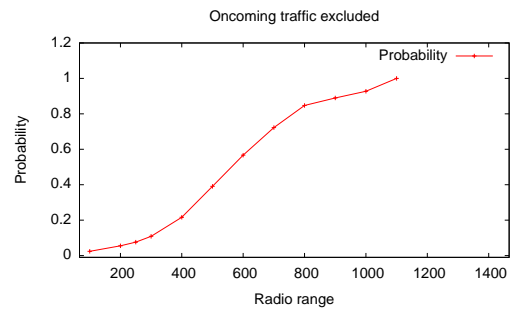


Avg. comm. partners: 62.47
Avg. active nodes: 136.74

B.1.7. Probability of being able to communicate with an arbitrary node



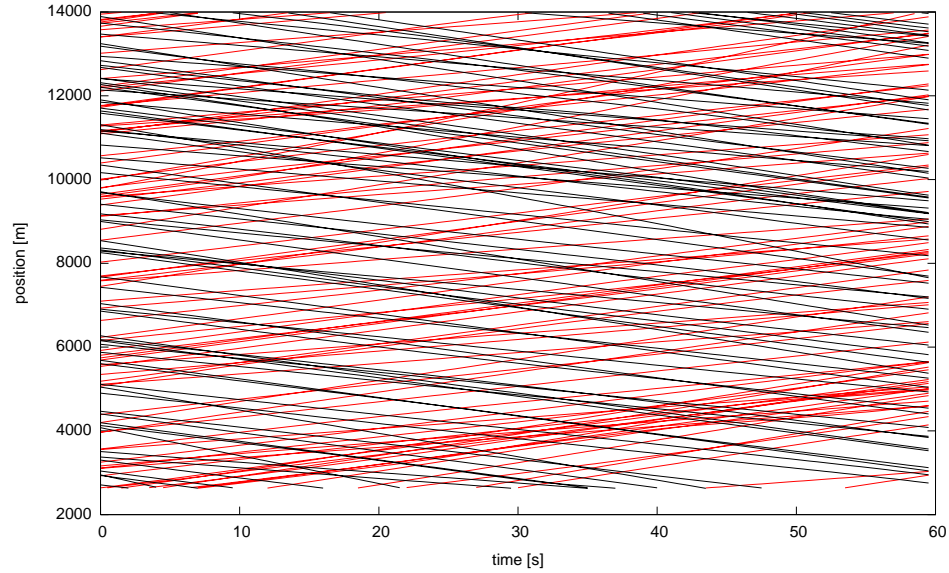
100.0 m:	0.03
200.0 m:	0.12
250.0 m:	0.20
300.0 m:	0.34
400.0 m:	0.77
500.0 m:	0.93
600.0 m:	0.94
700.0 m:	0.97
800.0 m:	1.00
900.0 m:	1.00
1000.0 m:	1.00
1100.0 m:	1.00



100.0 m:	0.02
200.0 m:	0.06
250.0 m:	0.08
300.0 m:	0.11
400.0 m:	0.22
500.0 m:	0.39
600.0 m:	0.57
700.0 m:	0.72
800.0 m:	0.85
900.0 m:	0.89
1000.0 m:	0.93
1100.0 m:	1.00

B.2. Scenario “mvmnt-hwgui-03lpd-02-02npkm-02.txt”

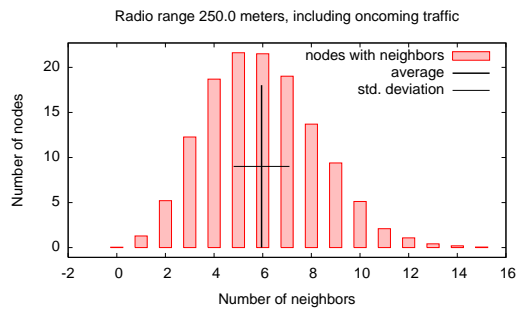
B.2.1. Trajectory plot



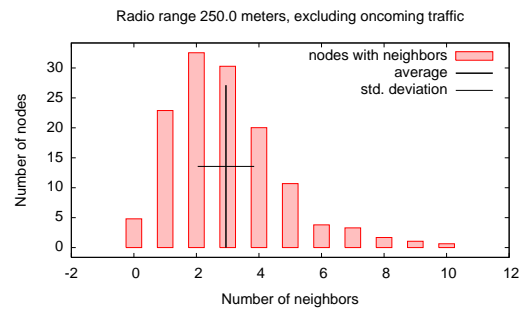
B.2.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	39.74
Number of nodes	170
Number of nodes (up)	86
Number of nodes (down)	84
Average node density [N/km]	12.15
Nodes per km and lane (up) [$N/(km \cdot lane)$]	2
Nodes per km and lane (down) [$N/(km \cdot lane)$]	2
Average number of active nodes	138.09
Average number of active nodes (up)	72.49
Average number of active nodes (down)	65.60
Number of lanes (up)	3
Length of valid area [m]	11364.10
Valid area start [m]	2627.00
Valid area end [m]	13991.10
Maximum CTR (both dirs) [m]	549.99

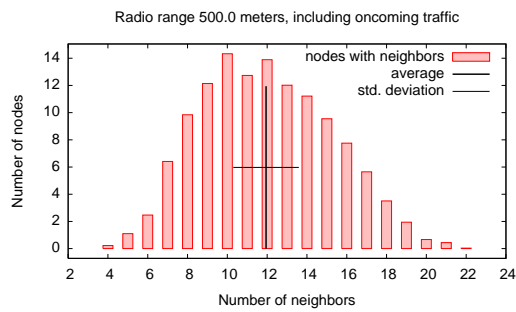
B.2.3. Neighbor histogram



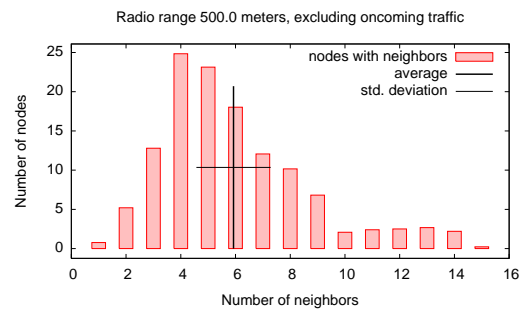
Average:	5.95
Variance:	5.26
Standard deviation:	2.29



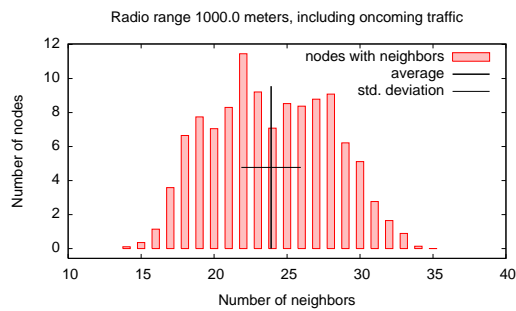
Average:	2.94
Variance:	3.26
Standard deviation:	1.80



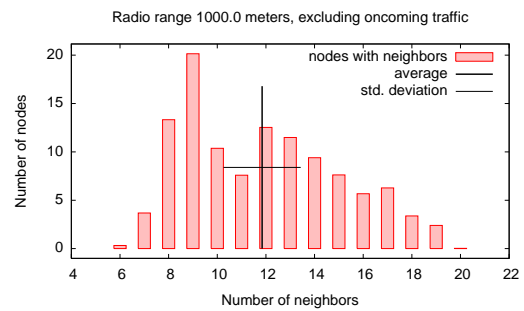
Average:	11.95
Variance:	10.84
Standard deviation:	3.29



Average:	5.93
Variance:	7.37
Standard deviation:	2.71



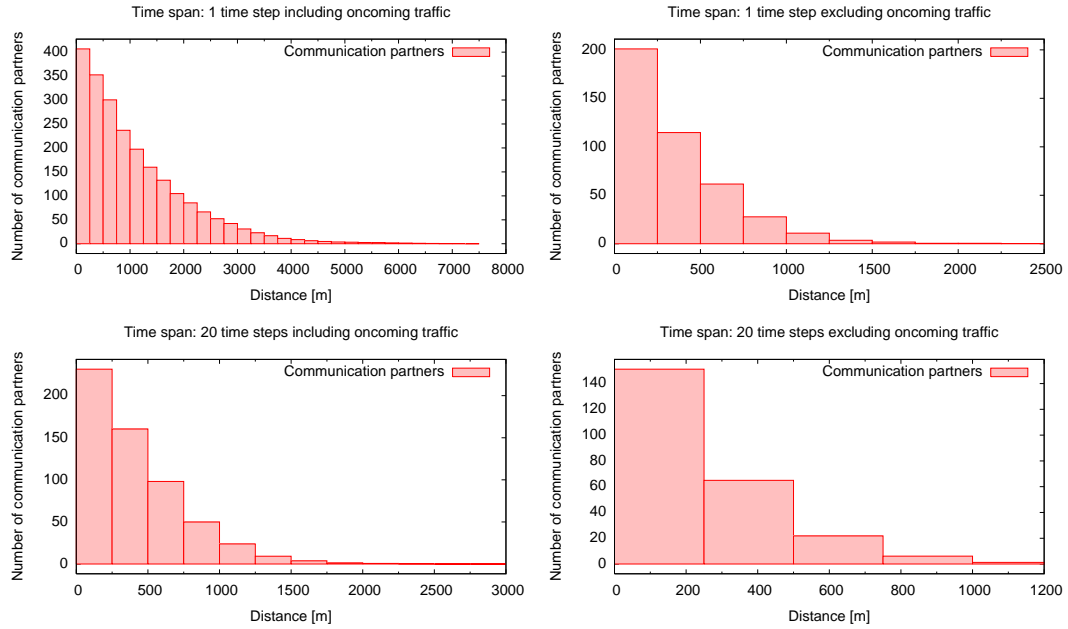
Average:	23.91
Variance:	16.61
Standard deviation:	4.08



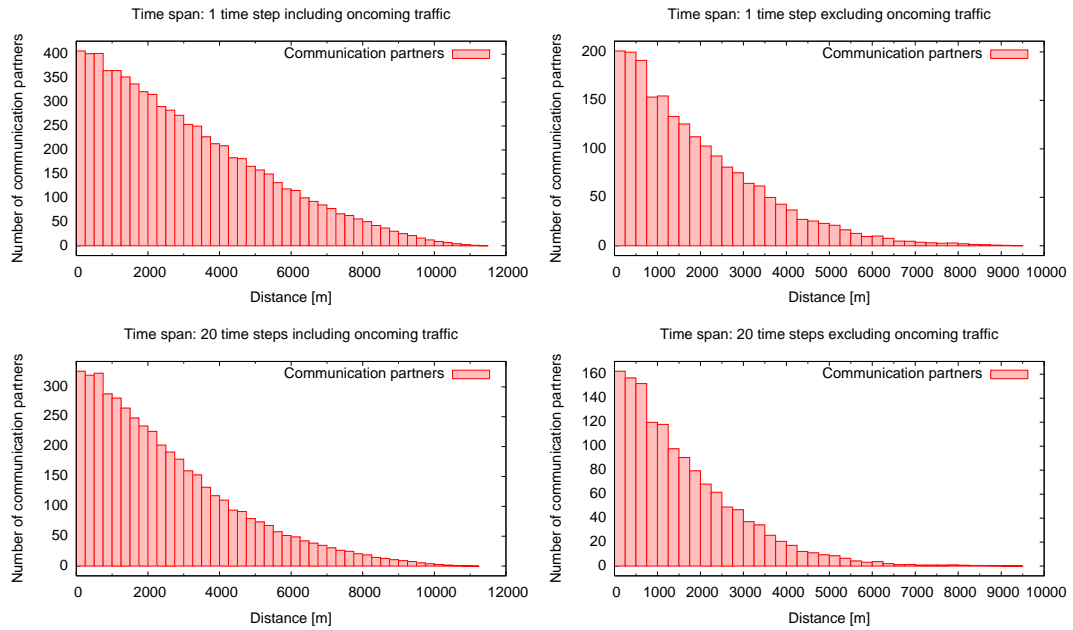
Average:	11.84
Variance:	10.07
Standard deviation:	3.17

B.2.4. Communication partner histogram

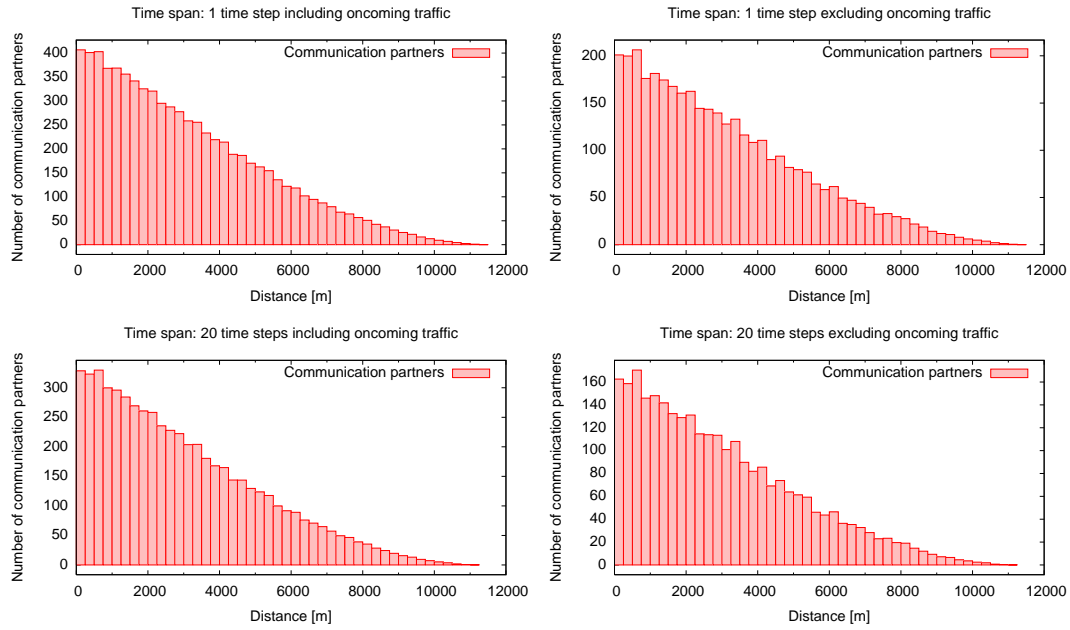
Radio range: 250.0 meters, bin size: 250.0 meters



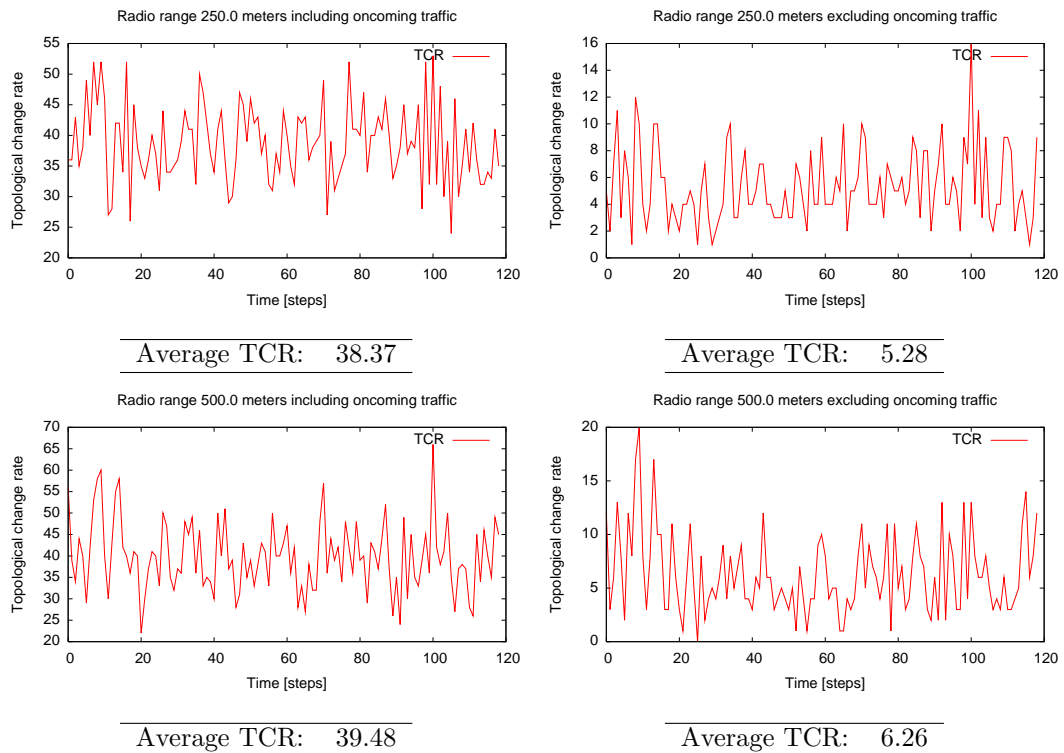
Radio range: 500.0 meters, bin size: 250.0 meters

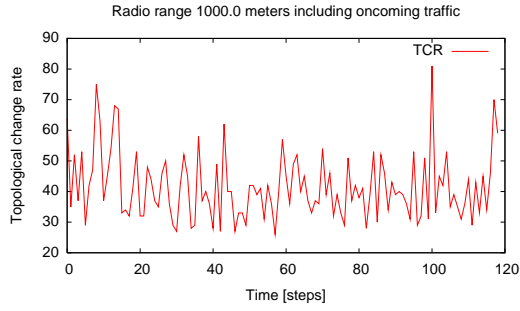


Radio range: 1000.0 meters, bin size: 250.0 meters

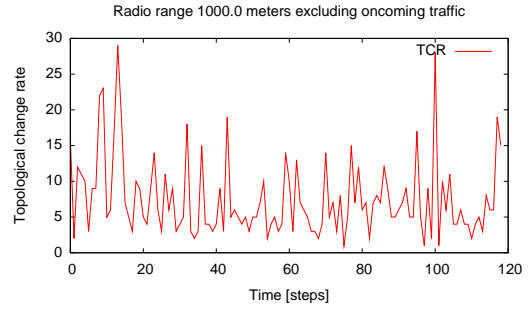


B.2.5. Topological Change Rate (TCR)



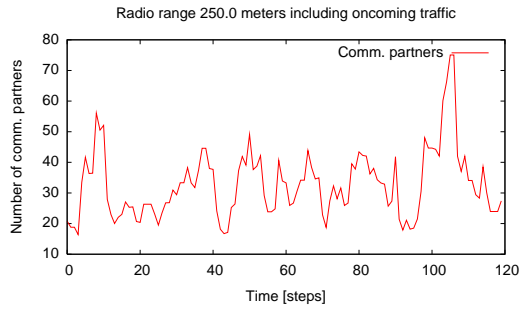


Average TCR: 41.15

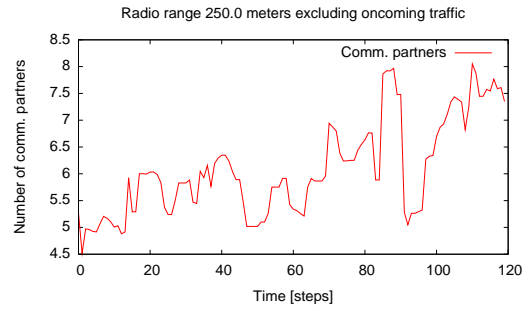


Average TCR: 7.44

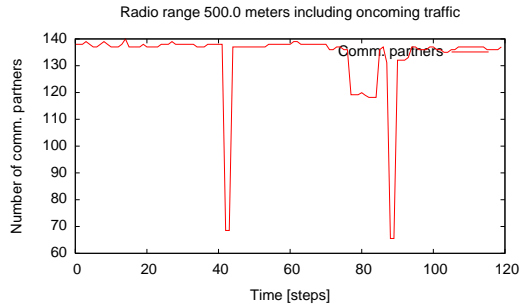
B.2.6. Total number of communication partners



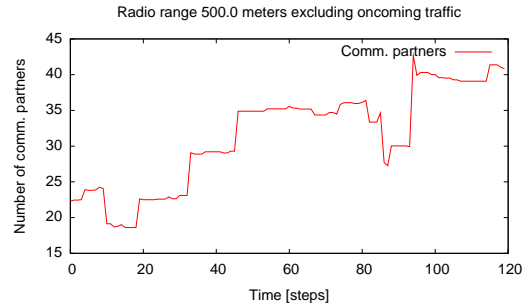
Avg. comm. partners: 32.72
Avg. active nodes: 138.09



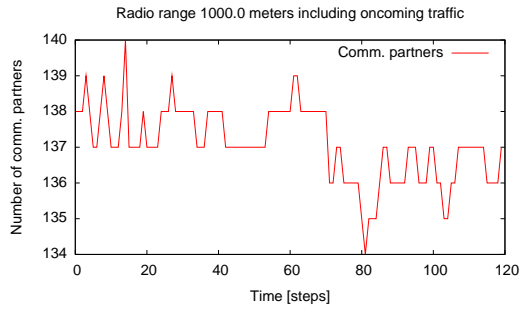
Avg. comm. partners: 6.09
Avg. active nodes: 138.09



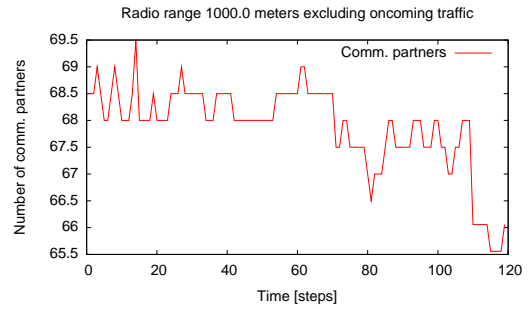
Avg. comm. partners: 133.50
Avg. active nodes: 138.09



Avg. comm. partners: 31.46
Avg. active nodes: 138.09

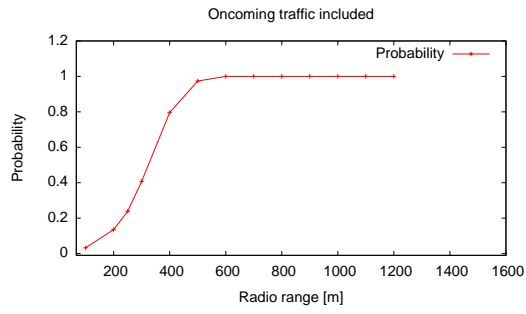


Avg. comm. partners: 137.09
Avg. active nodes: 138.09

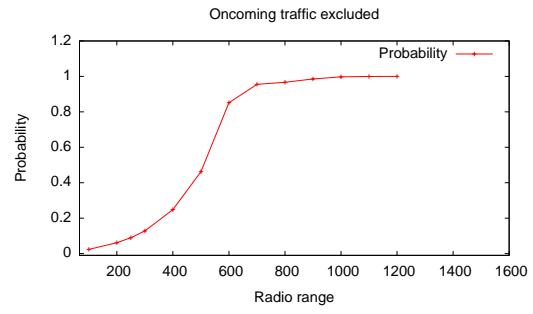


Avg. comm. partners: 67.88
Avg. active nodes: 138.09

B.2.7. Probability of being able to communicate with an arbitrary node



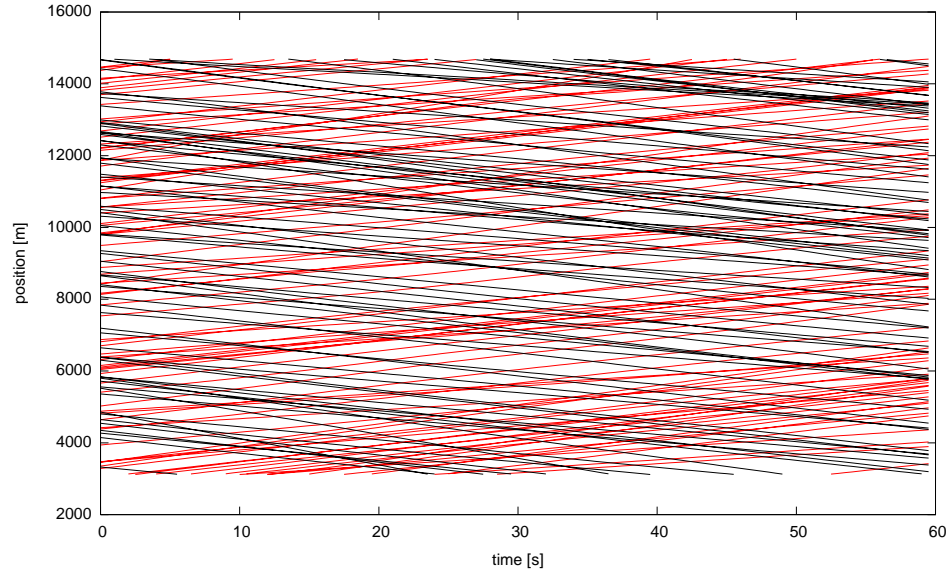
100.0 m:	0.03
200.0 m:	0.14
250.0 m:	0.24
300.0 m:	0.41
400.0 m:	0.80
500.0 m:	0.97
600.0 m:	1.00
700.0 m:	1.00
800.0 m:	1.00
900.0 m:	1.00
1000.0 m:	1.00
1100.0 m:	1.00
1200.0 m:	1.00



100.0 m:	0.02
200.0 m:	0.06
250.0 m:	0.09
300.0 m:	0.13
400.0 m:	0.25
500.0 m:	0.46
600.0 m:	0.85
700.0 m:	0.96
800.0 m:	0.97
900.0 m:	0.99
1000.0 m:	1.00
1100.0 m:	1.00
1200.0 m:	1.00

B.3. Scenario “mvmnt-hwgui-03lpd-02-02npkm-03.txt”

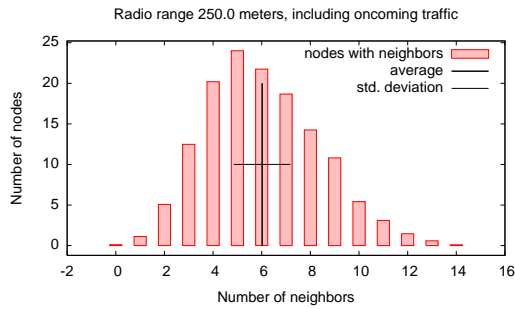
B.3.1. Trajectory plot



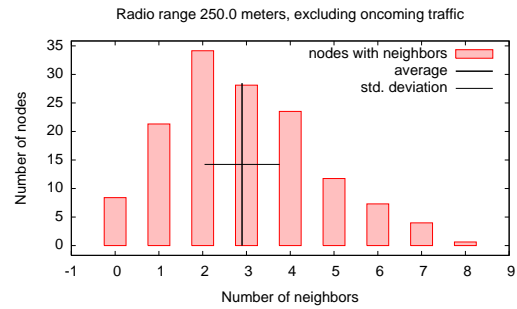
B.3.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	39.54
Number of nodes	173
Number of nodes (up)	88
Number of nodes (down)	85
Average node density [N/km]	12.61
Nodes per km and lane (up) [$N/(km \cdot lane)$]	2
Nodes per km and lane (down) [$N/(km \cdot lane)$]	2
Average number of active nodes	145.98
Average number of active nodes (up)	75.87
Average number of active nodes (down)	70.12
Number of lanes (up)	3
Length of valid area [m]	11574.70
Valid area start [m]	3116.60
Valid area end [m]	14691.30
Maximum CTR (both dirs) [m]	512.82

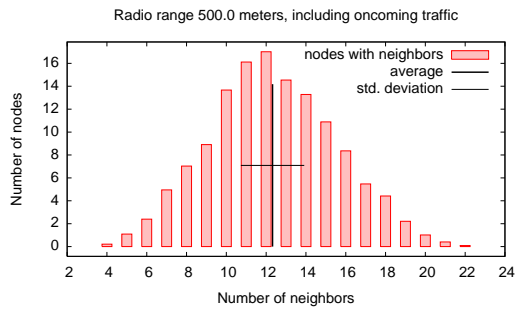
B.3.3. Neighbor histogram



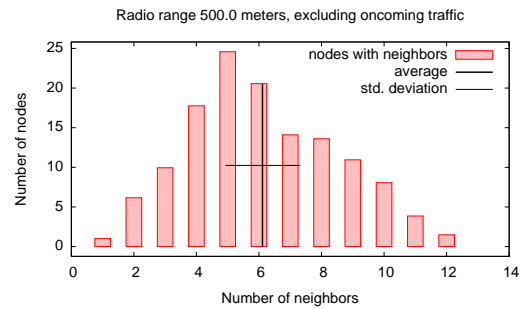
Average:	6.01
Variance:	5.43
Standard deviation:	2.33



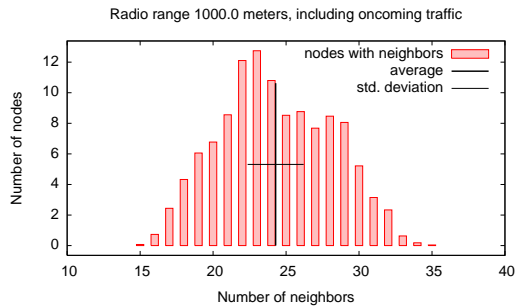
Average:	2.90
Variance:	2.94
Standard deviation:	1.72



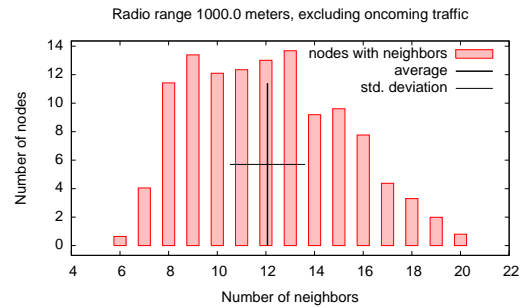
Average:	12.32
Variance:	10.13
Standard deviation:	3.18



Average:	6.11
Variance:	5.70
Standard deviation:	2.39



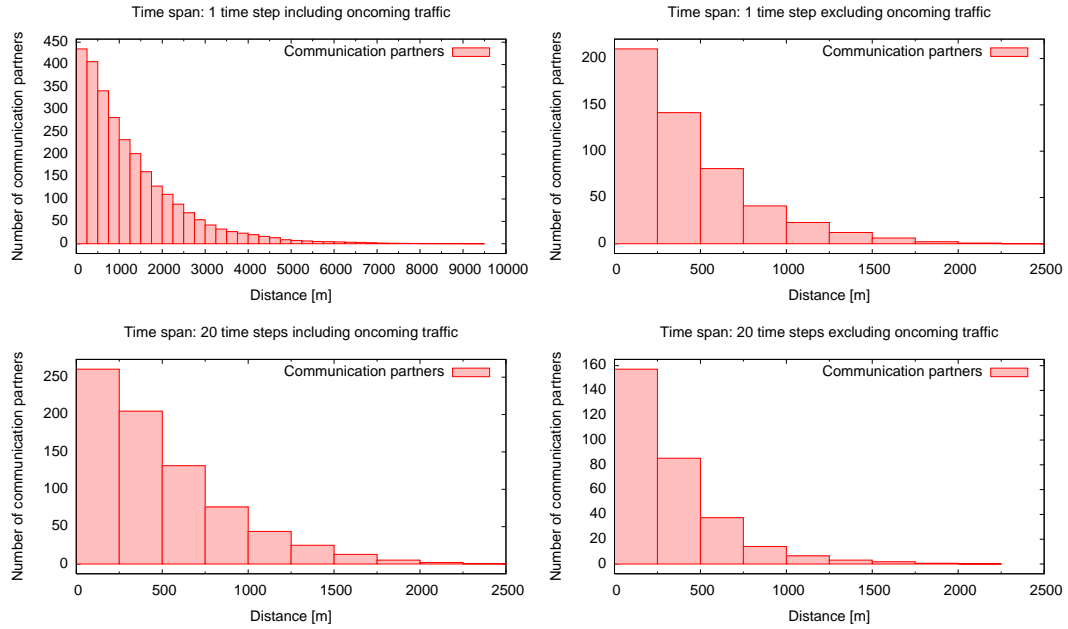
Average:	24.29
Variance:	14.72
Standard deviation:	3.84



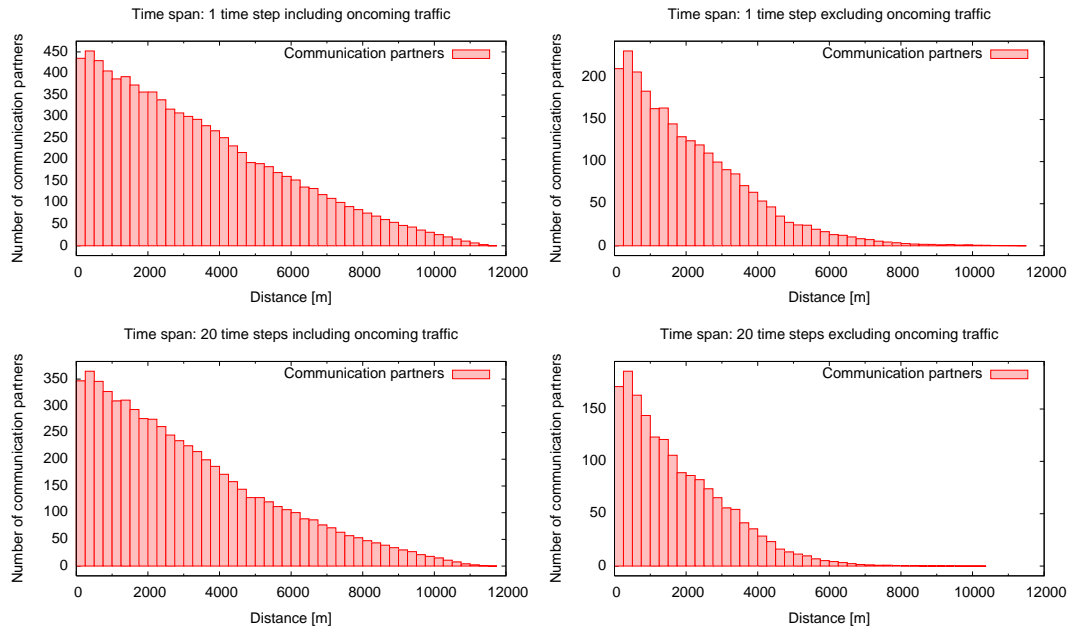
Average:	12.06
Variance:	9.57
Standard deviation:	3.09

B.3.4. Communication partner histogram

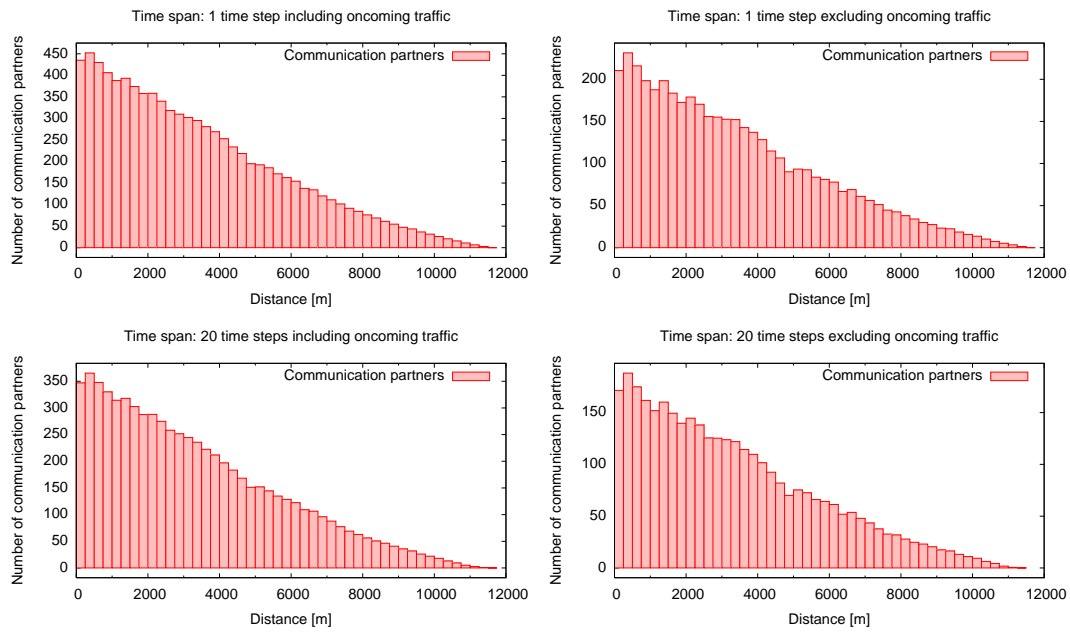
Radio range: 250.0 meters, bin size: 250.0 meters



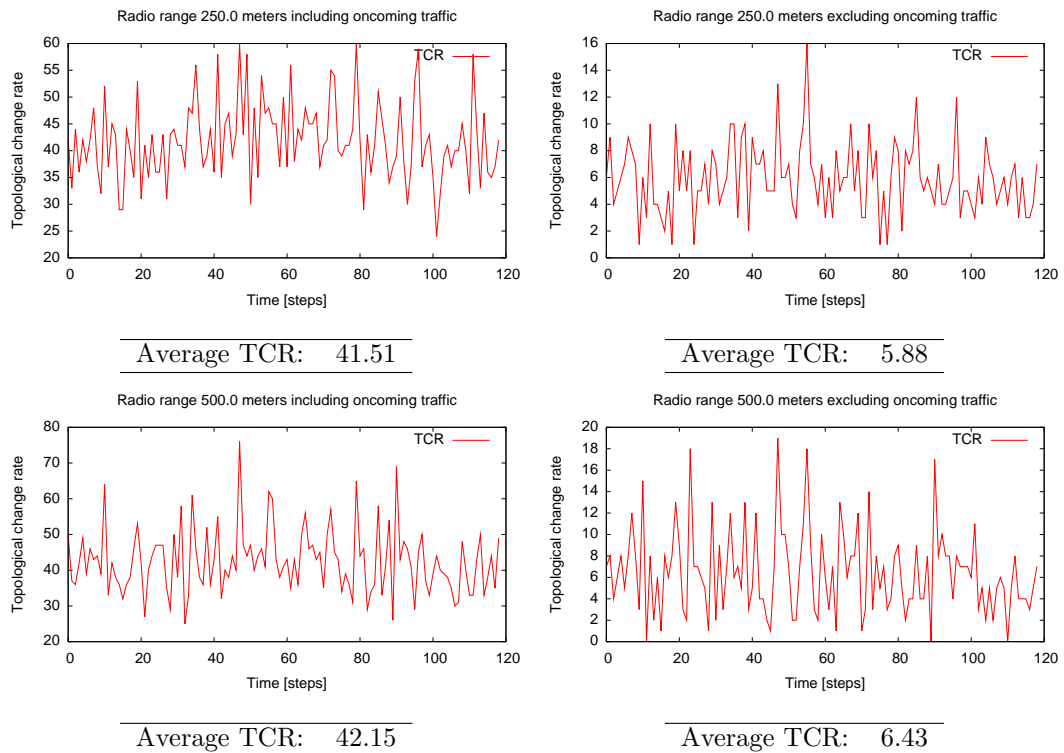
Radio range: 500.0 meters, bin size: 250.0 meters

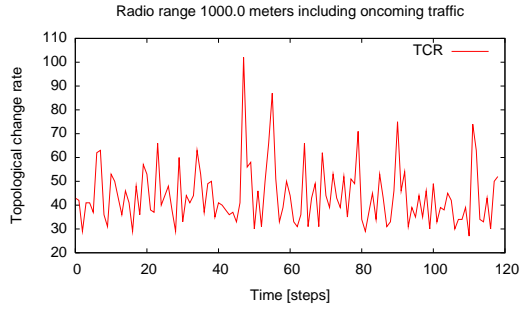


Radio range: 1000.0 meters, bin size: 250.0 meters

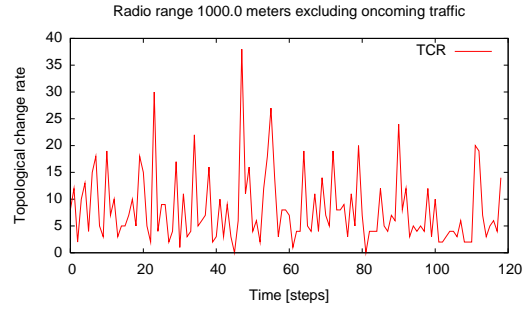


B.3.5. Topological Change Rate (TCR)



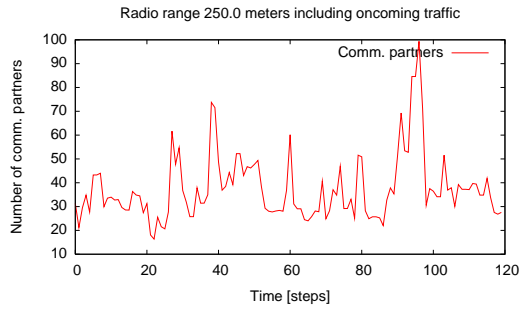


Average TCR: 43.68

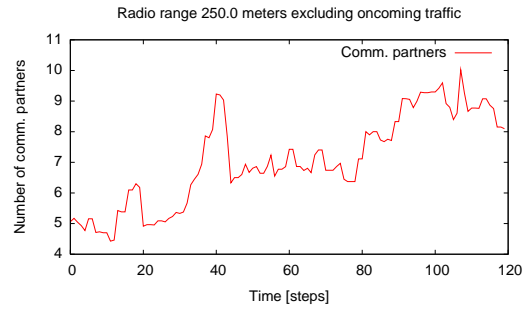


Average TCR: 8.11

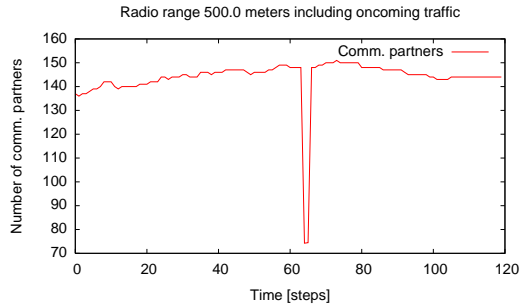
B.3.6. Total number of communication partners



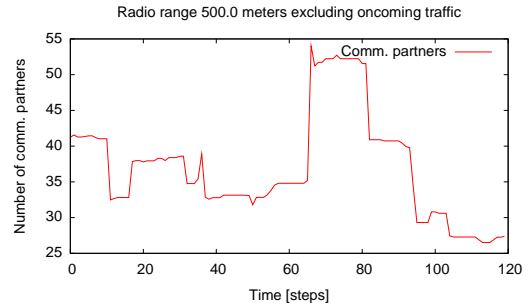
Avg. comm. partners: 37.47
Avg. active nodes: 145.98



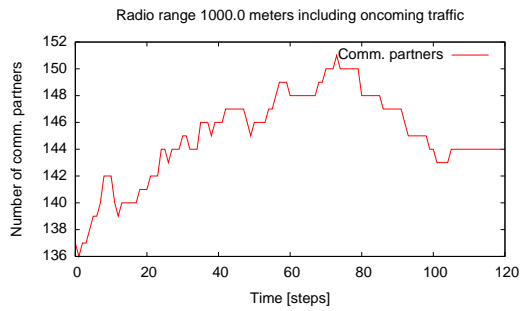
Avg. comm. partners: 7.06
Avg. active nodes: 145.98



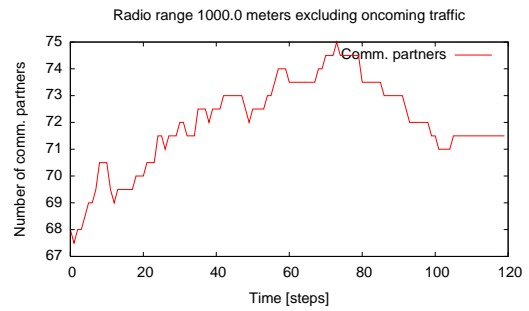
Avg. comm. partners: 143.76
Avg. active nodes: 145.98



Avg. comm. partners: 36.97
Avg. active nodes: 145.98

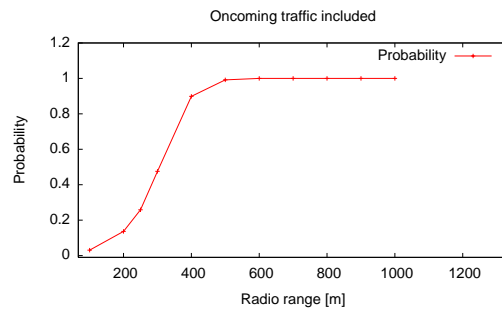


Avg. comm. partners: 144.98
Avg. active nodes: 145.98

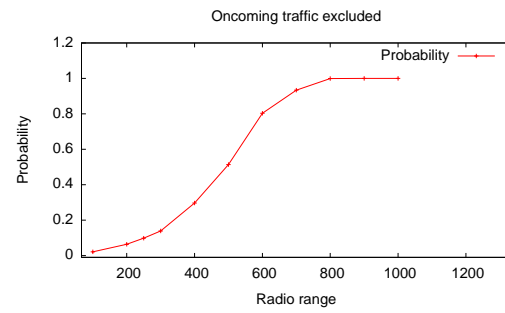


Avg. comm. partners: 71.99
Avg. active nodes: 145.98

B.3.7. Probability of being able to communicate with an arbitrary node



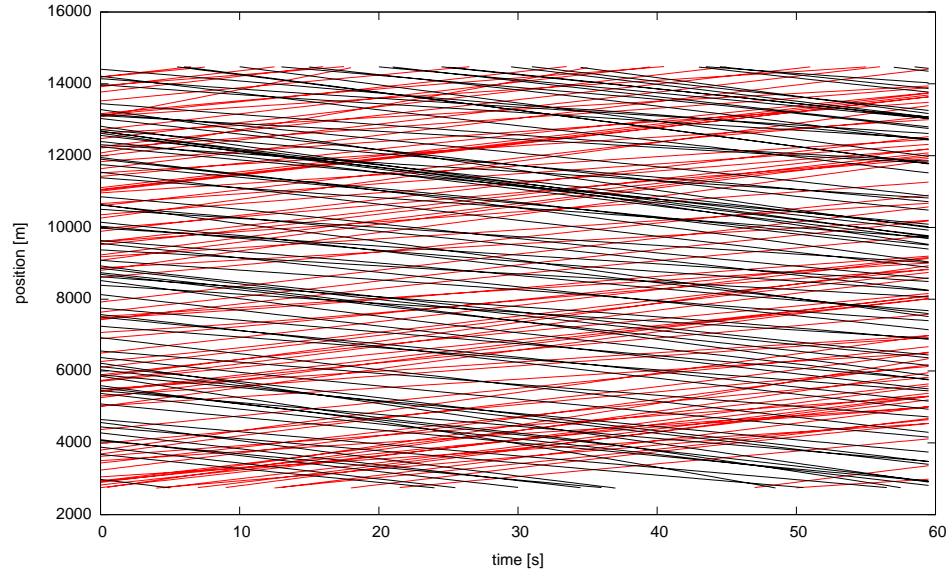
100.0 m:	0.03
200.0 m:	0.14
250.0 m:	0.26
300.0 m:	0.48
400.0 m:	0.90
500.0 m:	0.99
600.0 m:	1.00
700.0 m:	1.00
800.0 m:	1.00
900.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.02
200.0 m:	0.06
250.0 m:	0.10
300.0 m:	0.14
400.0 m:	0.30
500.0 m:	0.51
600.0 m:	0.80
700.0 m:	0.93
800.0 m:	1.00
900.0 m:	1.00
1000.0 m:	1.00

B.4. Scenario “mvmnt-hwgui-03lpd-02-02npkm-04.txt”

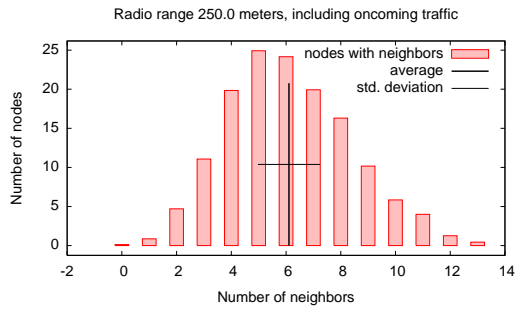
B.4.1. Trajectory plot



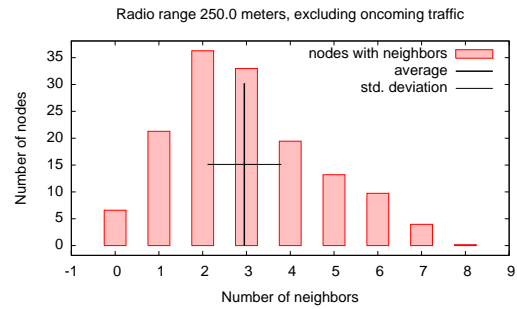
B.4.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	39.61
Number of nodes	174
Number of nodes (up)	87
Number of nodes (down)	87
Average node density [N/km]	12.73
Nodes per km and lane (up) [$N/(km \cdot lane)$]	2
Nodes per km and lane (down) [$N/(km \cdot lane)$]	2
Average number of active nodes	149.51
Average number of active nodes (up)	76.67
Average number of active nodes (down)	72.83
Number of lanes (up)	3
Length of valid area [m]	11744.40
Valid area start [m]	2737.70
Valid area end [m]	14482.10
Maximum CTR (both dirs) [m]	519.20

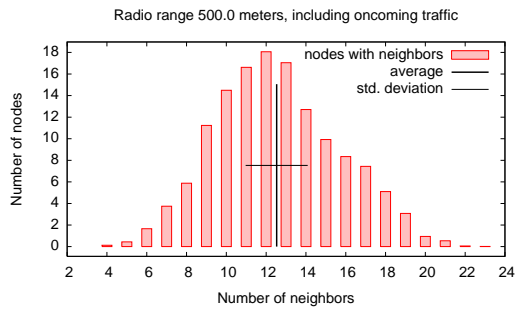
B.4.3. Neighbor histogram



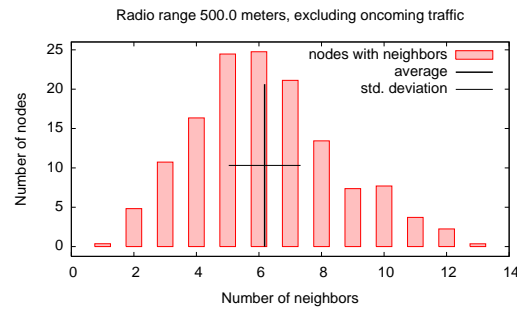
Average:	6.11
Variance:	5.16
Standard deviation:	2.27



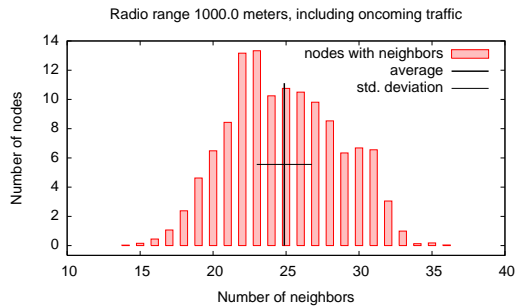
Average:	2.95
Variance:	2.84
Standard deviation:	1.68



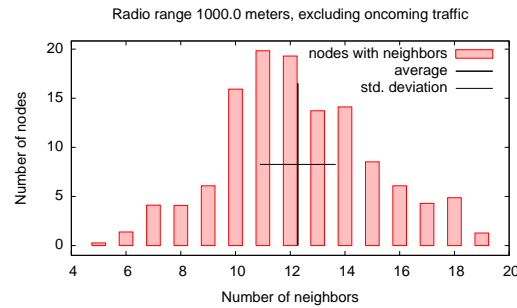
Average:	12.53
Variance:	9.73
Standard deviation:	3.12



Average:	6.18
Variance:	5.27
Standard deviation:	2.30



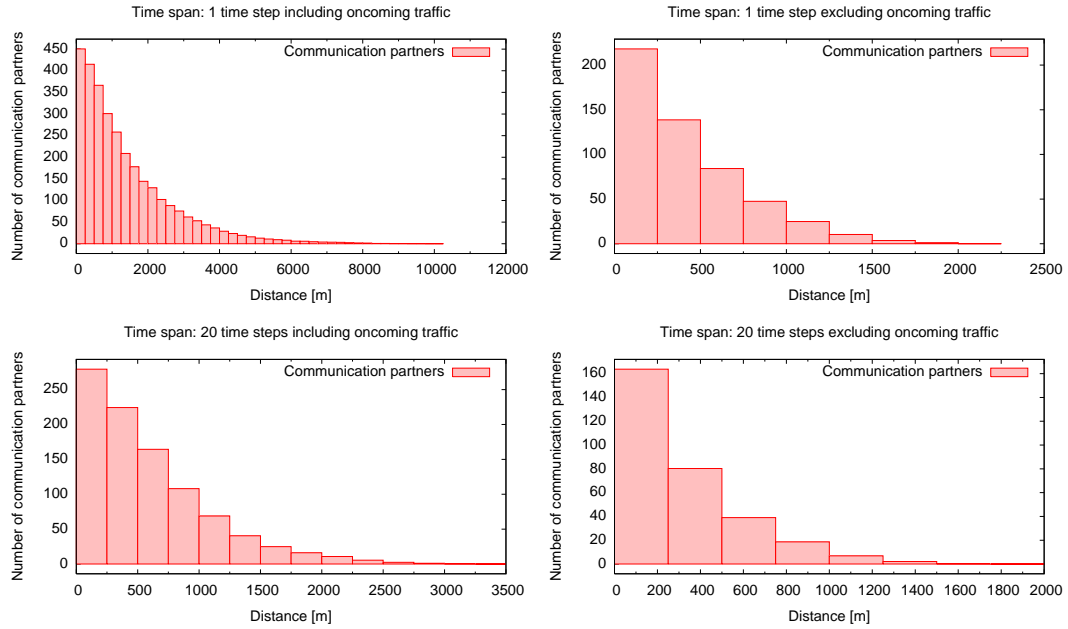
Average:	24.88
Variance:	14.23
Standard deviation:	3.77



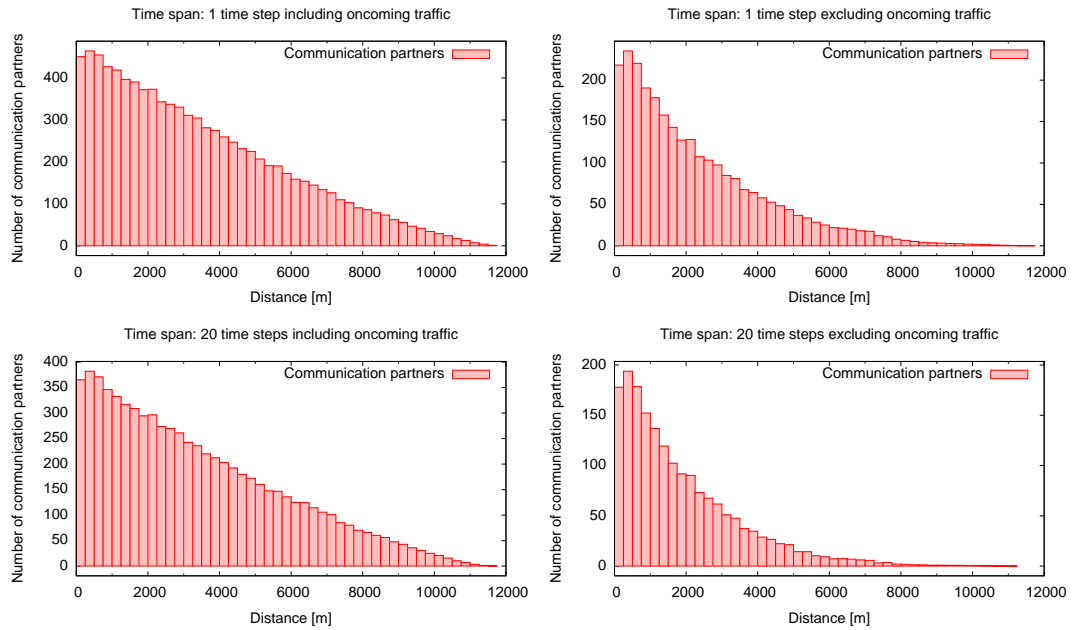
Average:	12.28
Variance:	7.67
Standard deviation:	2.77

B.4.4. Communication partner histogram

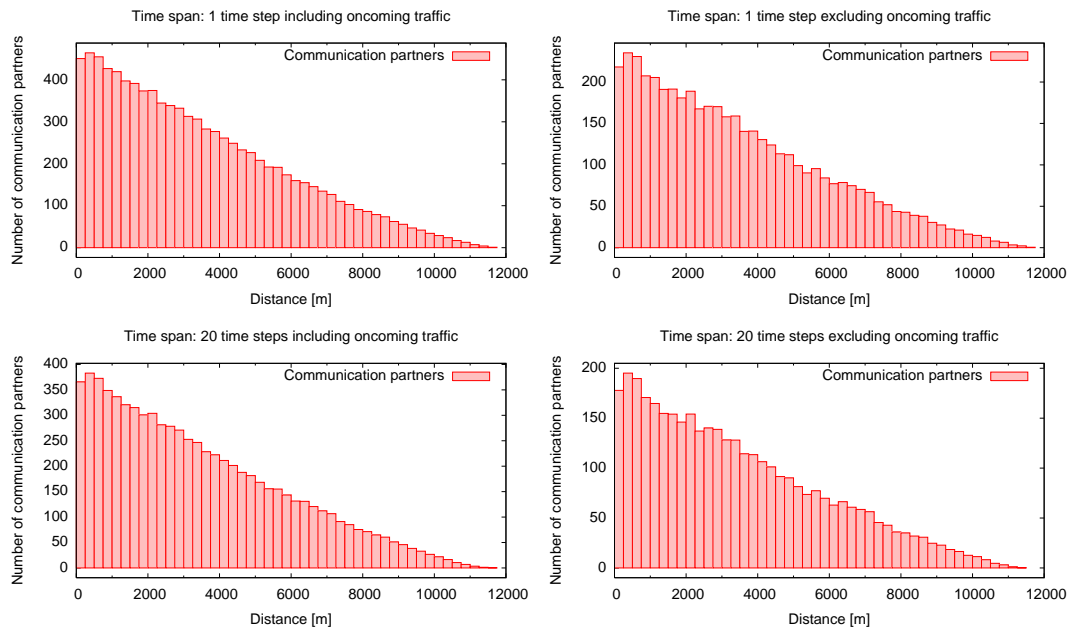
Radio range: 250.0 meters, bin size: 250.0 meters



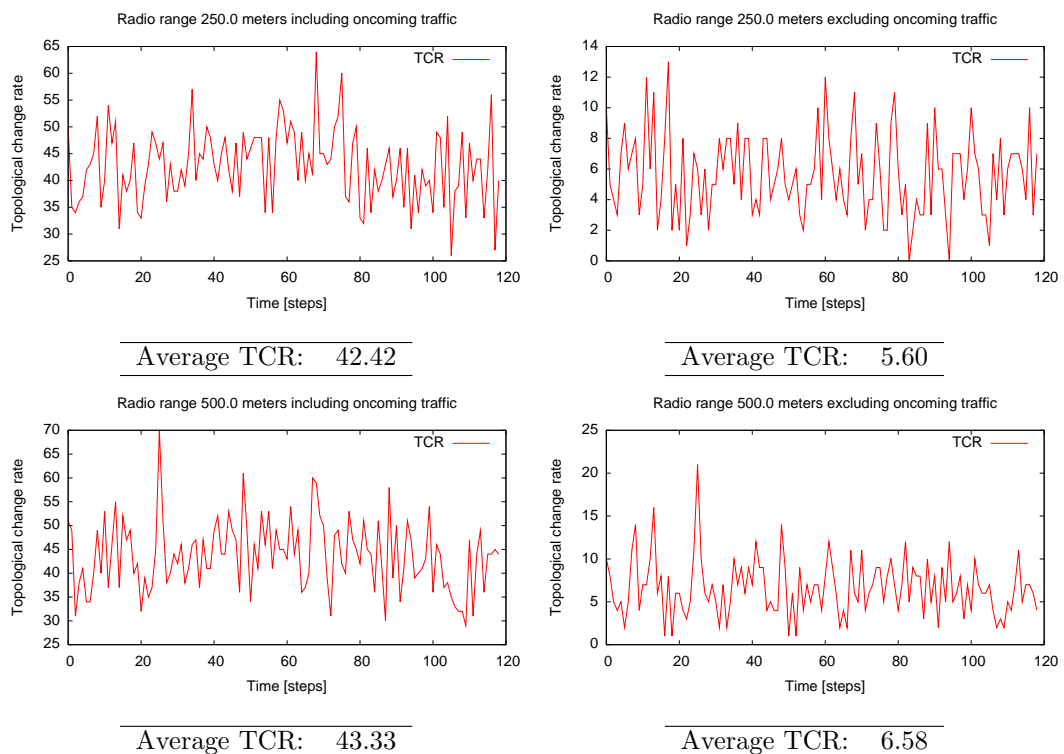
Radio range: 500.0 meters, bin size: 250.0 meters

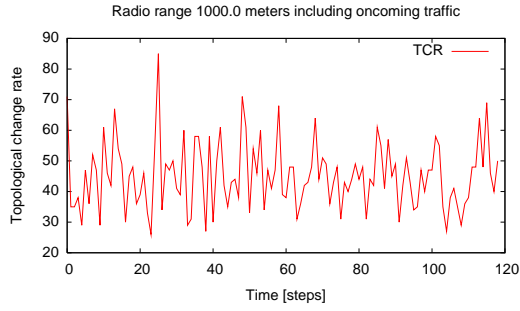


Radio range: 1000.0 meters, bin size: 250.0 meters

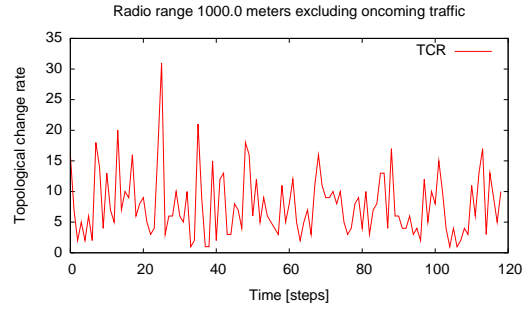


B.4.5. Topological Change Rate (TCR)



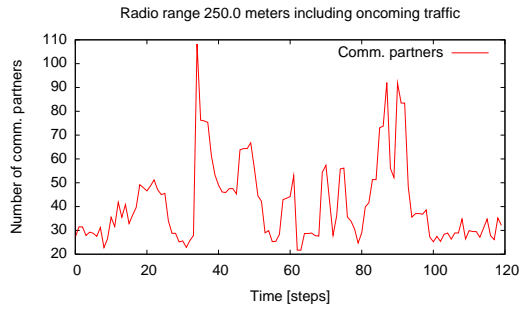


Average TCR: 44.73

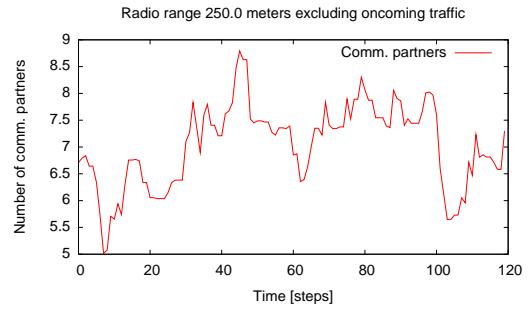


Average TCR: 7.74

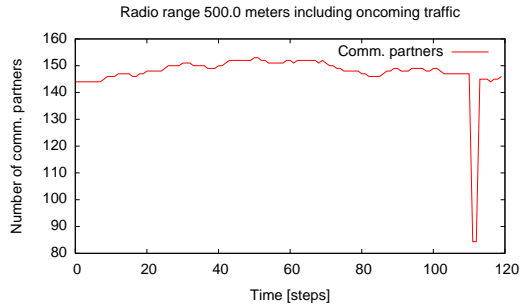
B.4.6. Total number of communication partners



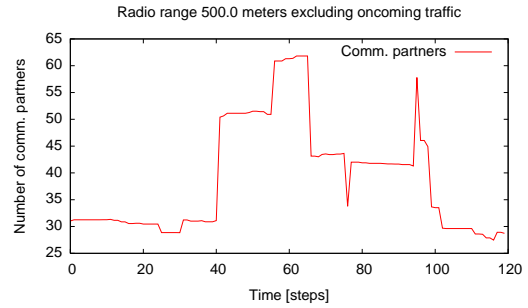
Avg. comm. partners: 41.14
Avg. active nodes: 149.51



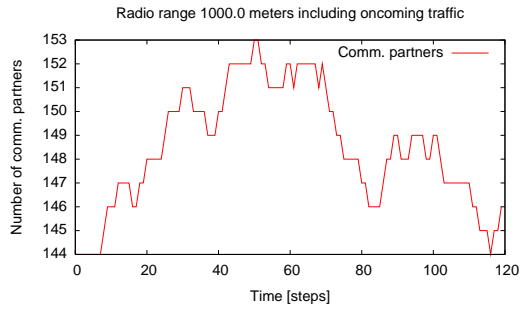
Avg. comm. partners: 7.04
Avg. active nodes: 149.51



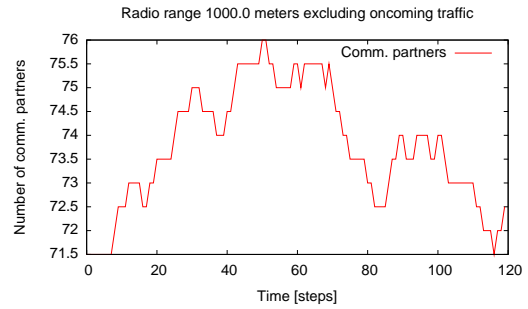
Avg. comm. partners: 147.48
Avg. active nodes: 149.51



Avg. comm. partners: 38.96
Avg. active nodes: 149.51

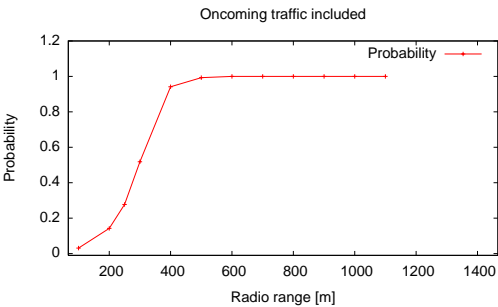


Avg. comm. partners: 148.51
Avg. active nodes: 149.51

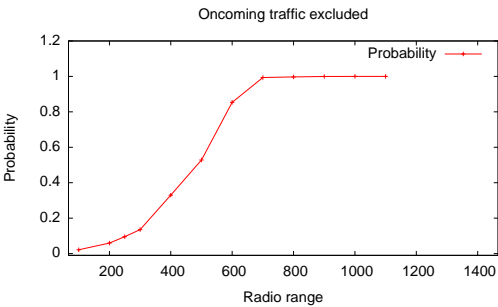


Avg. comm. partners: 73.75
Avg. active nodes: 149.51

B.4.7. Probability of being able to communicate with an arbitrary node



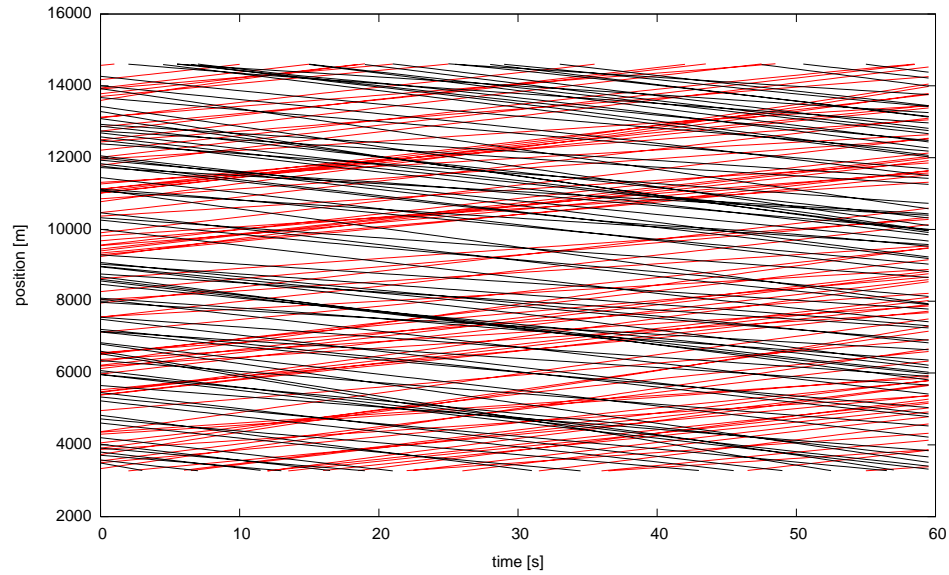
100.0 m:	0.03
200.0 m:	0.14
250.0 m:	0.28
300.0 m:	0.52
400.0 m:	0.94
500.0 m:	0.99
600.0 m:	1.00
700.0 m:	1.00
800.0 m:	1.00
900.0 m:	1.00
1000.0 m:	1.00
1100.0 m:	1.00



100.0 m:	0.02
200.0 m:	0.06
250.0 m:	0.10
300.0 m:	0.14
400.0 m:	0.33
500.0 m:	0.53
600.0 m:	0.85
700.0 m:	0.99
800.0 m:	1.00
900.0 m:	1.00
1000.0 m:	1.00
1100.0 m:	1.00

B.5. Scenario “mvmnt-hwgui-03lpd-02-02npkm-05.txt”

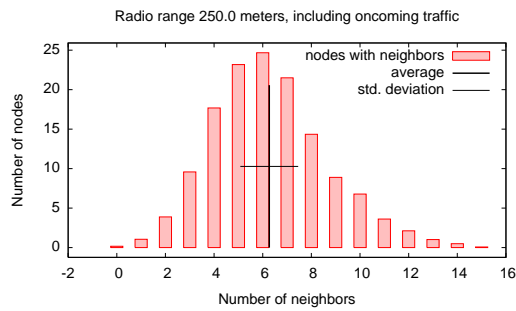
B.5.1. Trajectory plot



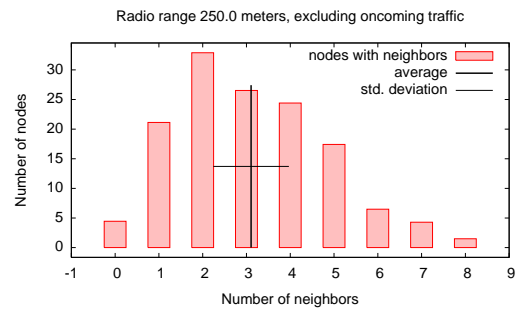
B.5.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	39.50
Number of nodes	174
Number of nodes (up)	86
Number of nodes (down)	88
Average node density [N/km]	12.85
Nodes per km and lane (up) [$N/(km \cdot lane)$]	2
Nodes per km and lane (down) [$N/(km \cdot lane)$]	2
Average number of active nodes	145.70
Average number of active nodes (up)	73.47
Average number of active nodes (down)	72.23
Number of lanes (up)	3
Length of valid area [m]	11342.00
Valid area start [m]	3272.50
Valid area end [m]	14614.50
Maximum CTR (both dirs) [m]	589.21

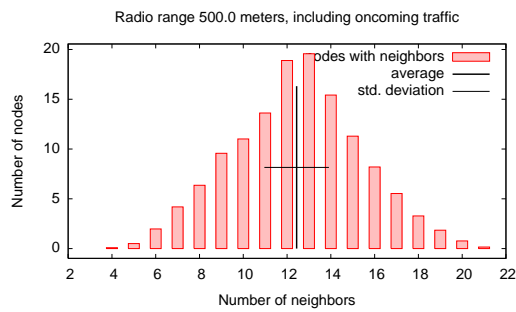
B.5.3. Neighbor histogram



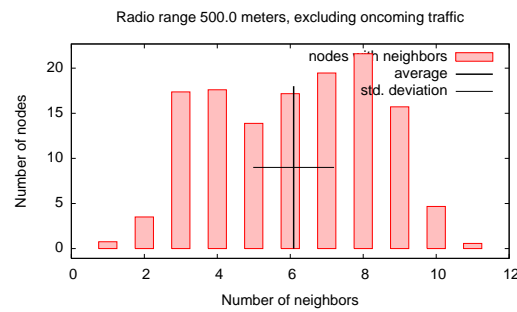
Average:	6.27
Variance:	5.66
Standard deviation:	2.38



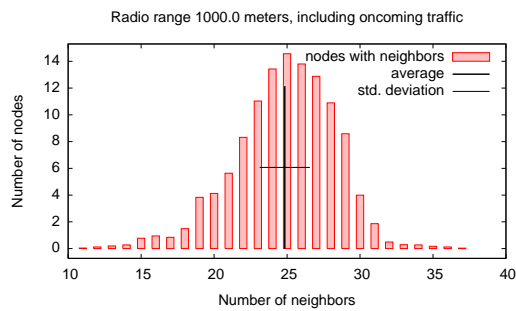
Average:	3.11
Variance:	2.98
Standard deviation:	1.73



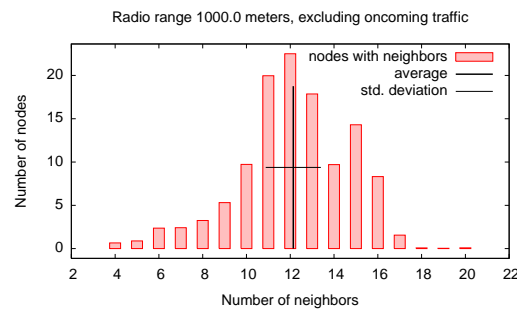
Average:	12.44
Variance:	8.69
Standard deviation:	2.95



Average:	6.09
Variance:	4.92
Standard deviation:	2.22



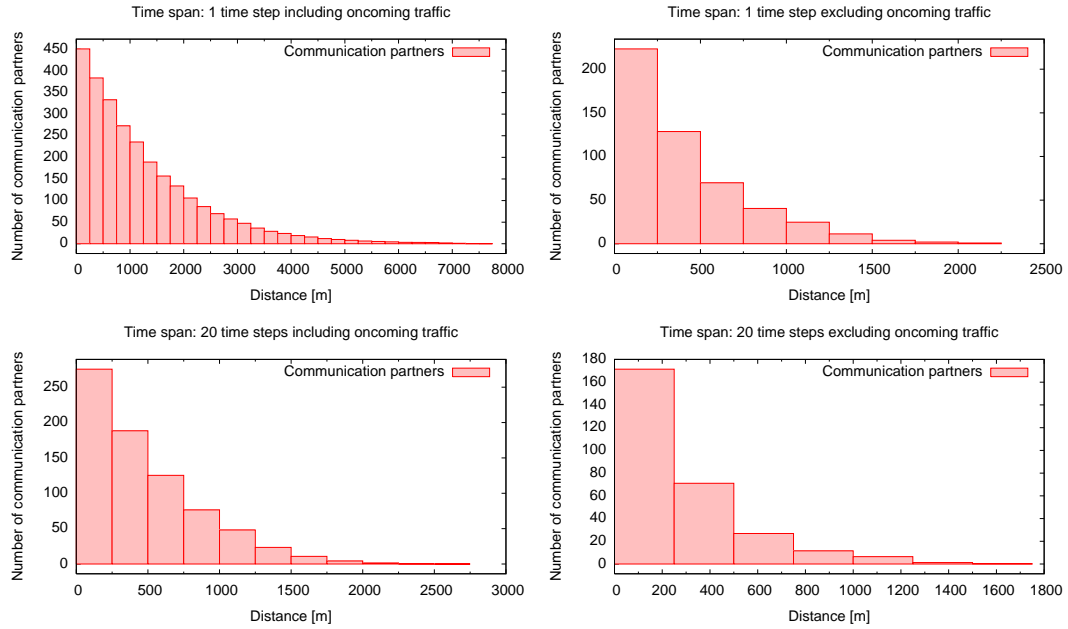
Average:	24.85
Variance:	11.79
Standard deviation:	3.43



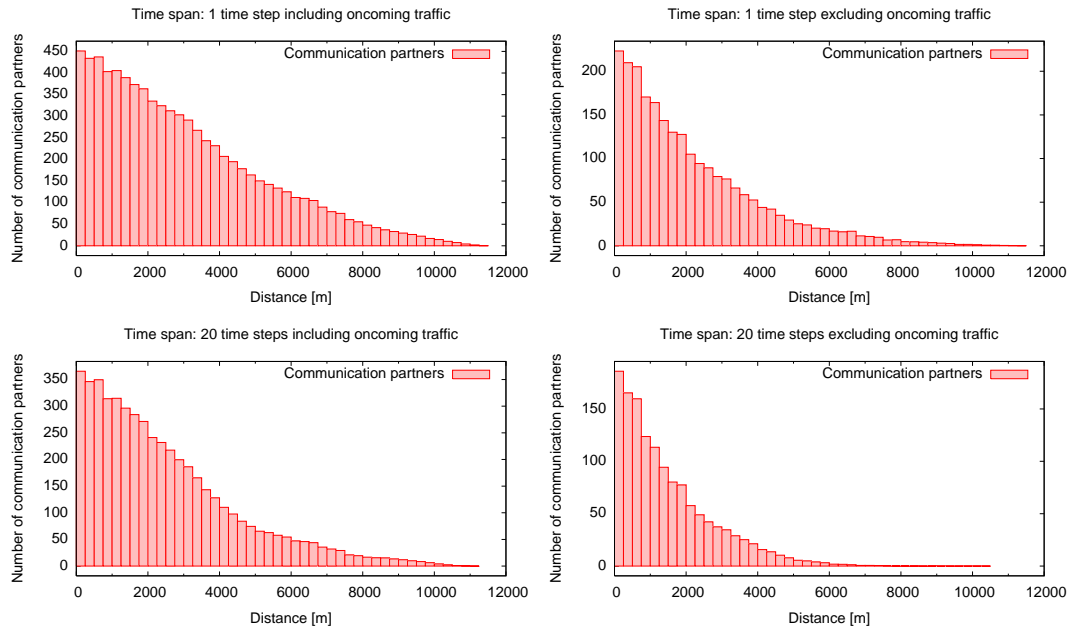
Average:	12.14
Variance:	6.35
Standard deviation:	2.52

B.5.4. Communication partner histogram

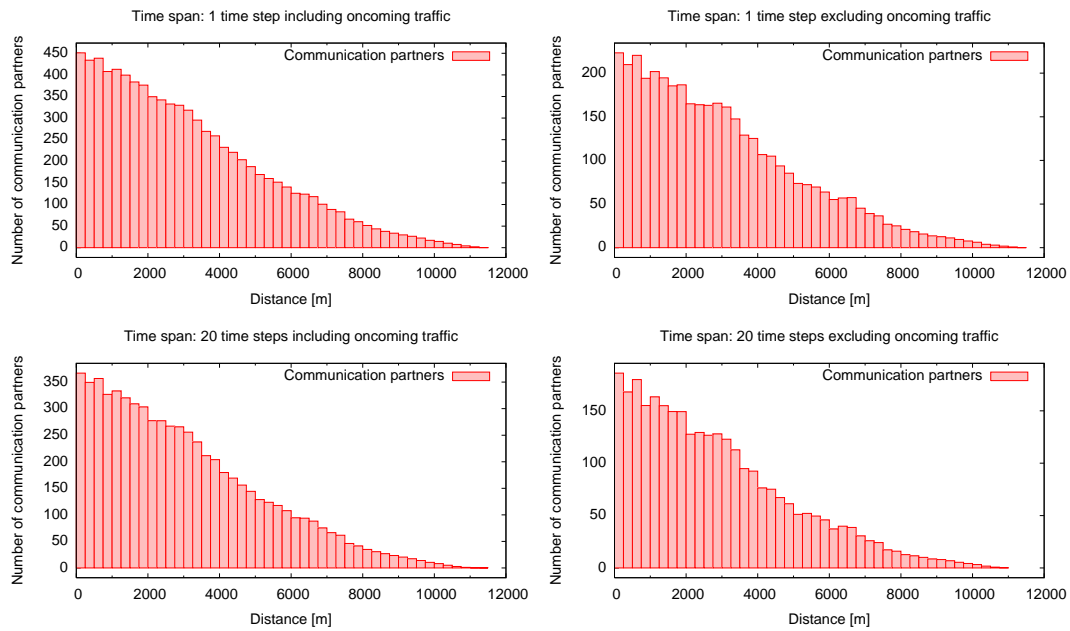
Radio range: 250.0 meters, bin size: 250.0 meters



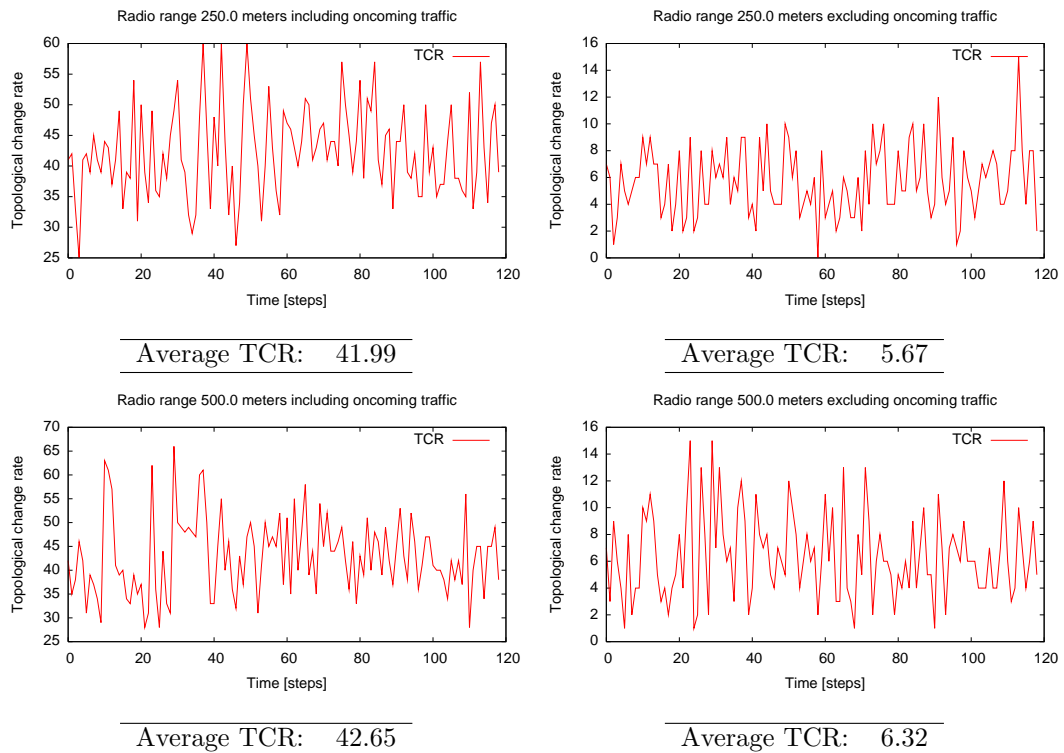
Radio range: 500.0 meters, bin size: 250.0 meters

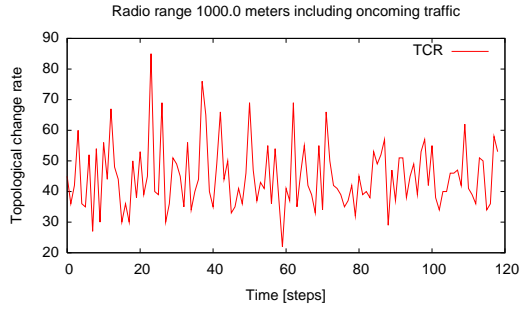


Radio range: 1000.0 meters, bin size: 250.0 meters

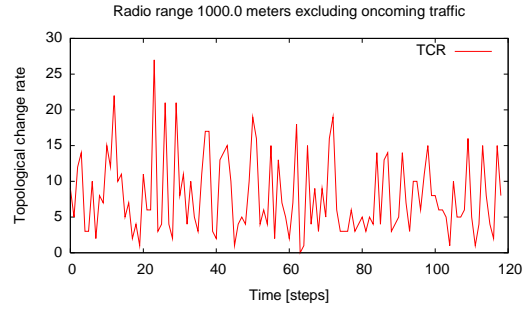


B.5.5. Topological Change Rate (TCR)



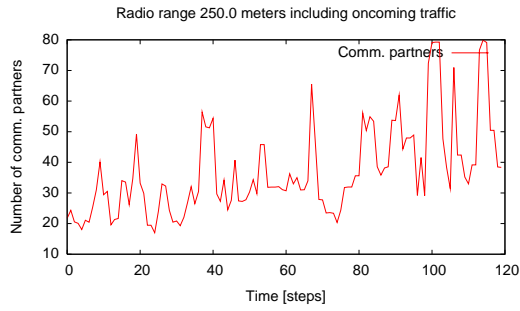


Average TCR: 44.48

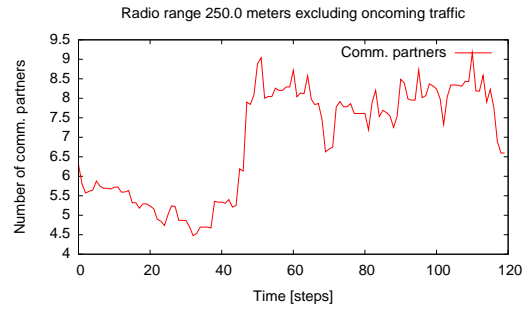


Average TCR: 7.91

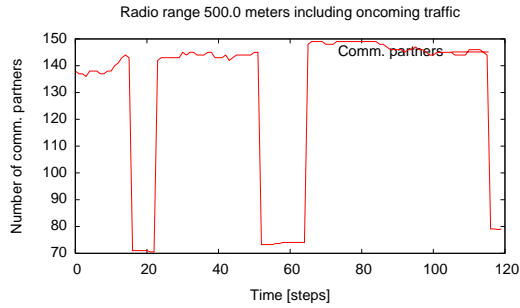
B.5.6. Total number of communication partners



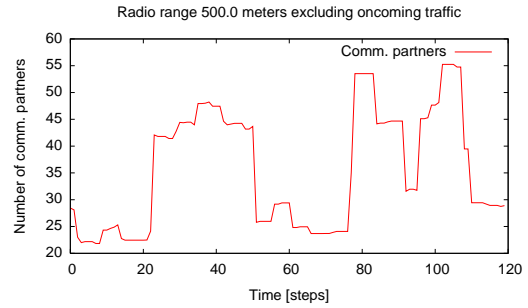
Avg. comm. partners: 37.06
Avg. active nodes: 145.70



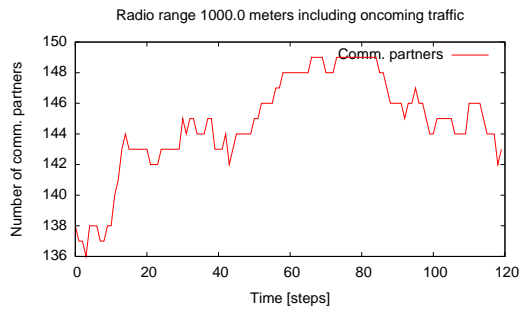
Avg. comm. partners: 6.91
Avg. active nodes: 145.70



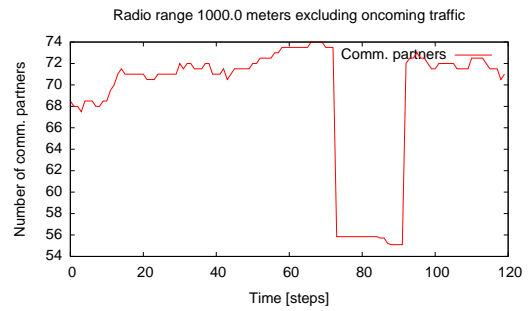
Avg. comm. partners: 130.41
Avg. active nodes: 145.70



Avg. comm. partners: 35.56
Avg. active nodes: 145.70

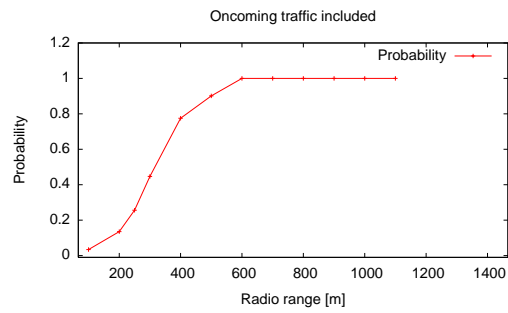


Avg. comm. partners: 144.70
Avg. active nodes: 145.70

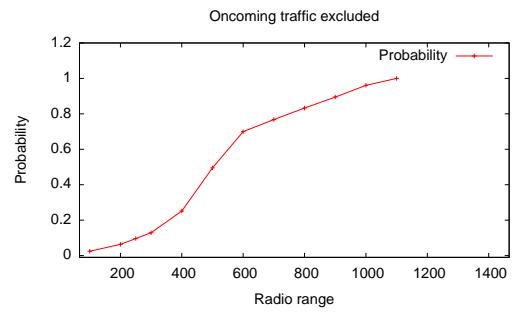


Avg. comm. partners: 69.01
Avg. active nodes: 145.70

B.5.7. Probability of being able to communicate with an arbitrary node



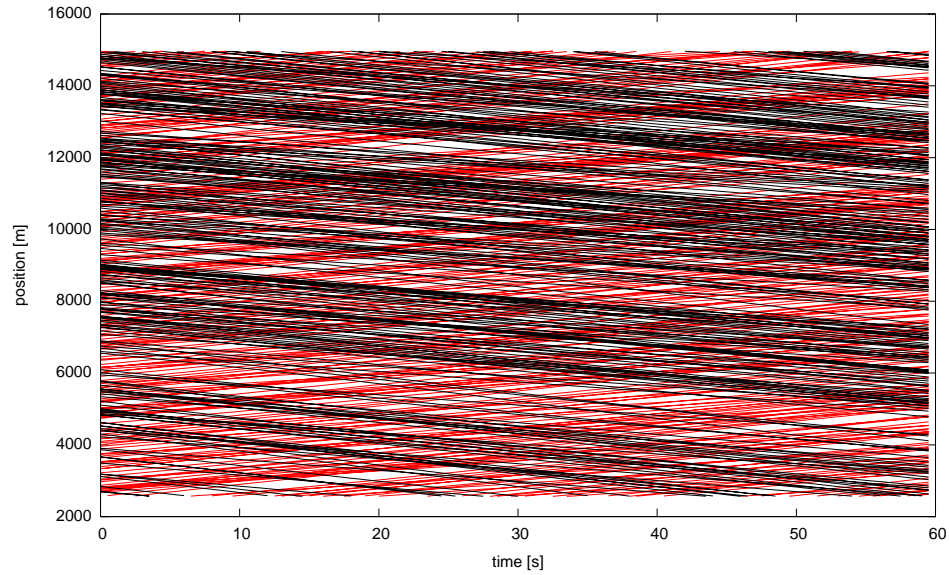
100.0 m:	0.03
200.0 m:	0.14
250.0 m:	0.26
300.0 m:	0.45
400.0 m:	0.78
500.0 m:	0.90
600.0 m:	1.00
700.0 m:	1.00
800.0 m:	1.00
900.0 m:	1.00
1000.0 m:	1.00
1100.0 m:	1.00



100.0 m:	0.02
200.0 m:	0.06
250.0 m:	0.10
300.0 m:	0.13
400.0 m:	0.25
500.0 m:	0.49
600.0 m:	0.70
700.0 m:	0.77
800.0 m:	0.83
900.0 m:	0.89
1000.0 m:	0.96
1100.0 m:	1.00

B.6. Scenario “mvmnt-hwgui-03lpd-06-06npkm-01.txt”

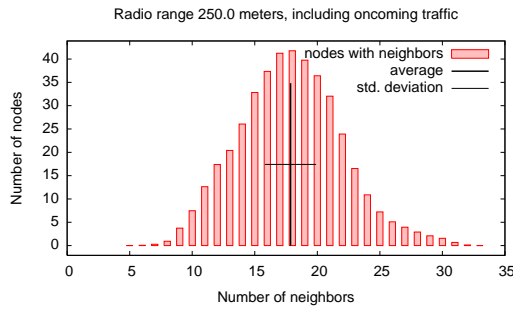
B.6.1. Trajectory plot



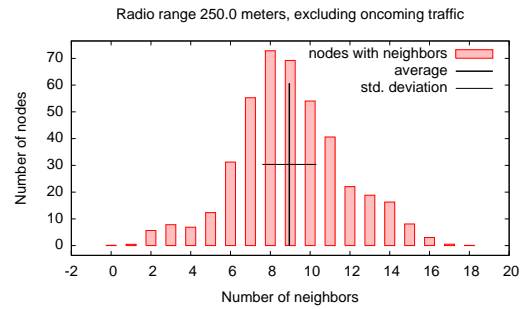
B.6.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	34.44
Number of nodes	512
Number of nodes (up)	266
Number of nodes (down)	246
Average node density [N/km]	35.62
Nodes per km and lane (up) [$N/(km \cdot lane)$]	6
Nodes per km and lane (down) [$N/(km \cdot lane)$]	6
Average number of active nodes	441.73
Average number of active nodes (up)	223.84
Average number of active nodes (down)	217.89
Number of lanes (up)	3
Length of valid area [m]	12401.60
Valid area start [m]	2564.80
Valid area end [m]	14966.40
Maximum CTR (both dirs) [m]	329.00

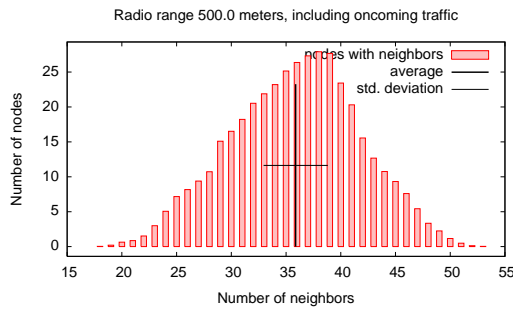
B.6.3. Neighbor histogram



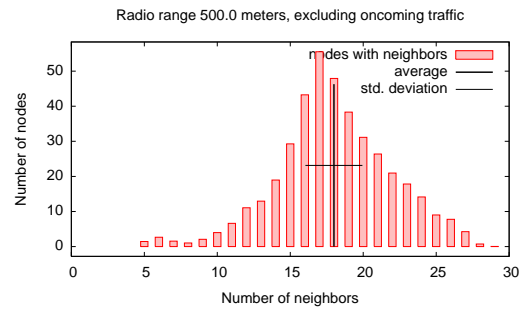
Average:	17.86
Variance:	16.80
Standard deviation:	4.10



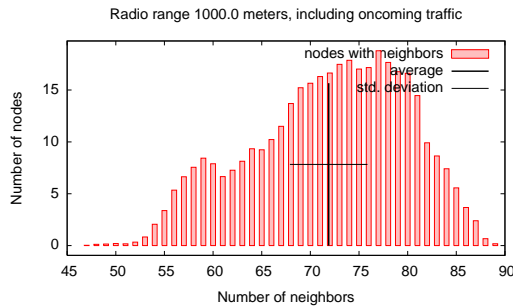
Average:	8.95
Variance:	7.40
Standard deviation:	2.72



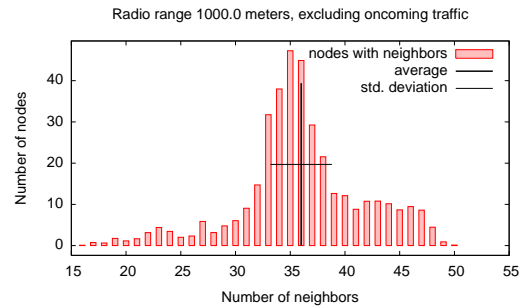
Average:	35.88
Variance:	34.40
Standard deviation:	5.87



Average:	17.99
Variance:	15.27
Standard deviation:	3.91



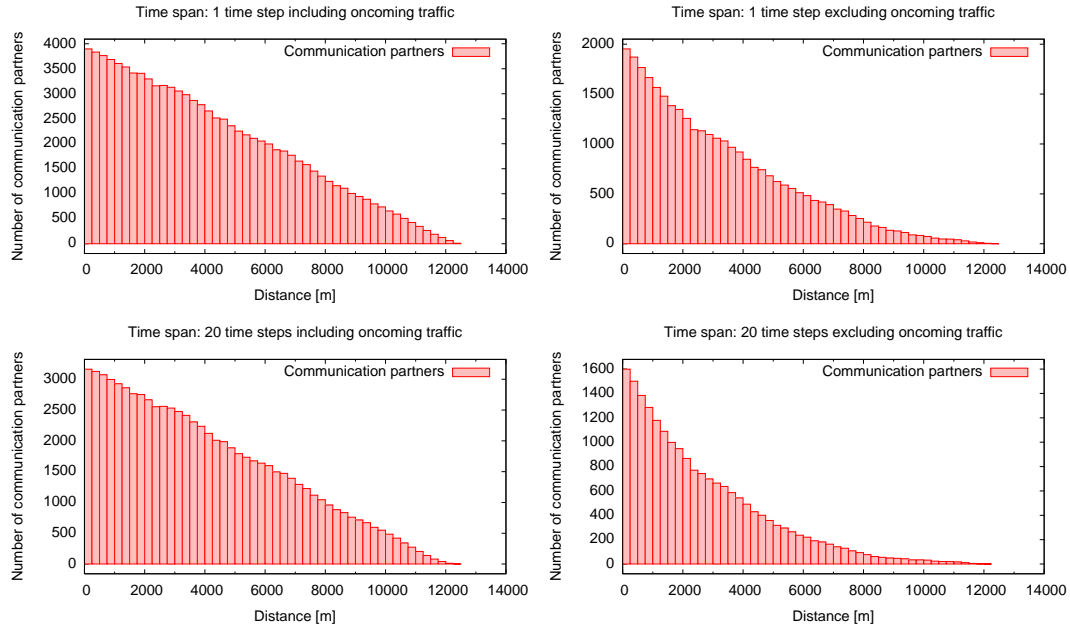
Average:	71.89
Variance:	63.58
Standard deviation:	7.97



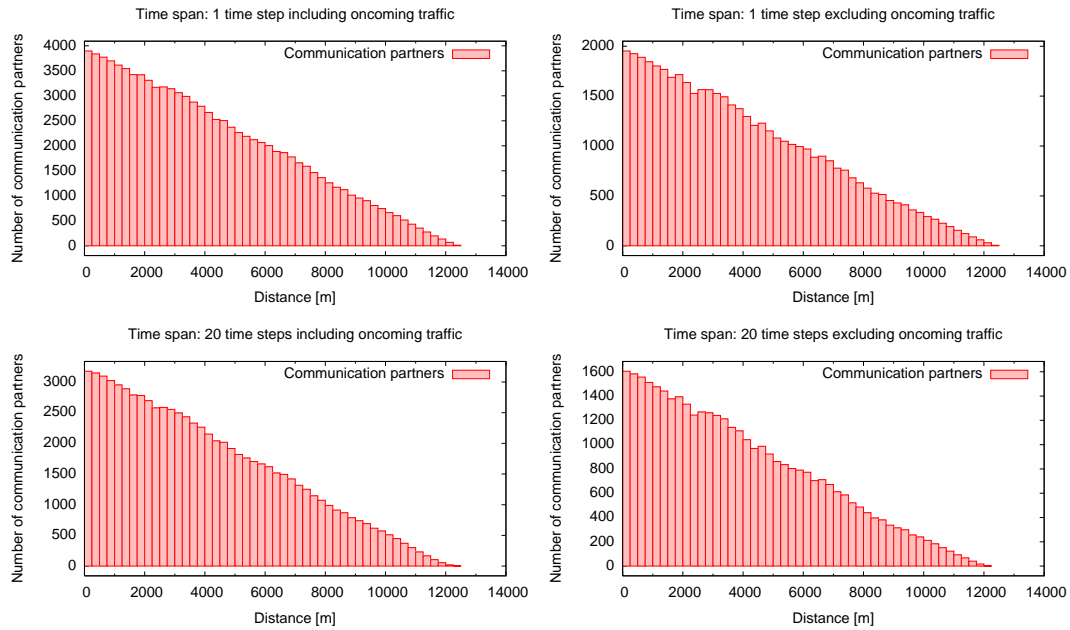
Average:	36.00
Variance:	31.51
Standard deviation:	5.61

B.6.4. Communication partner histogram

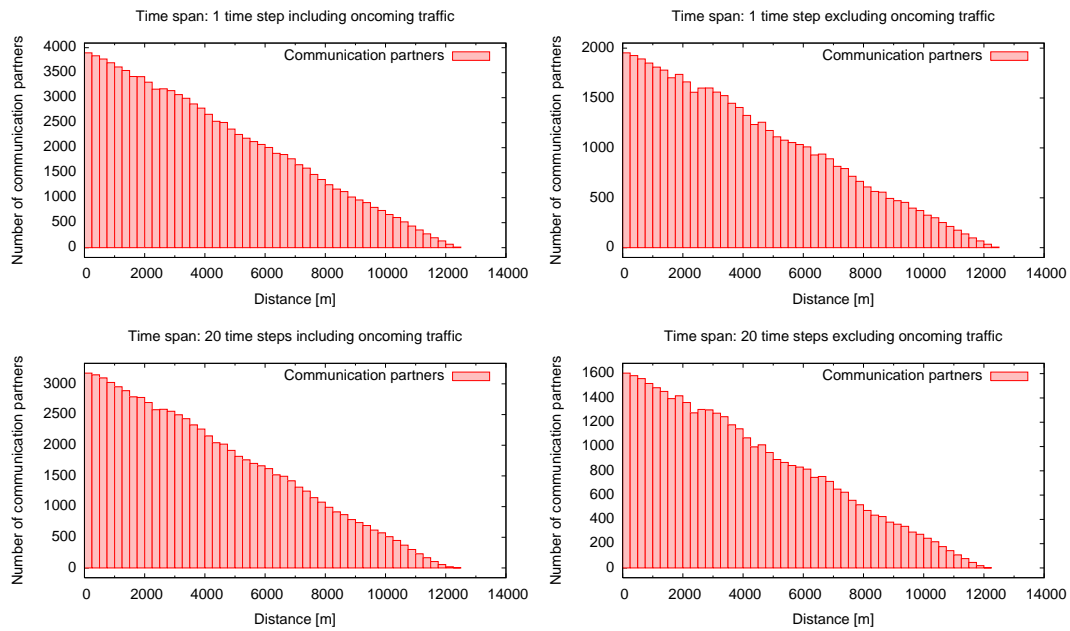
Radio range: 250.0 meters, bin size: 250.0 meters



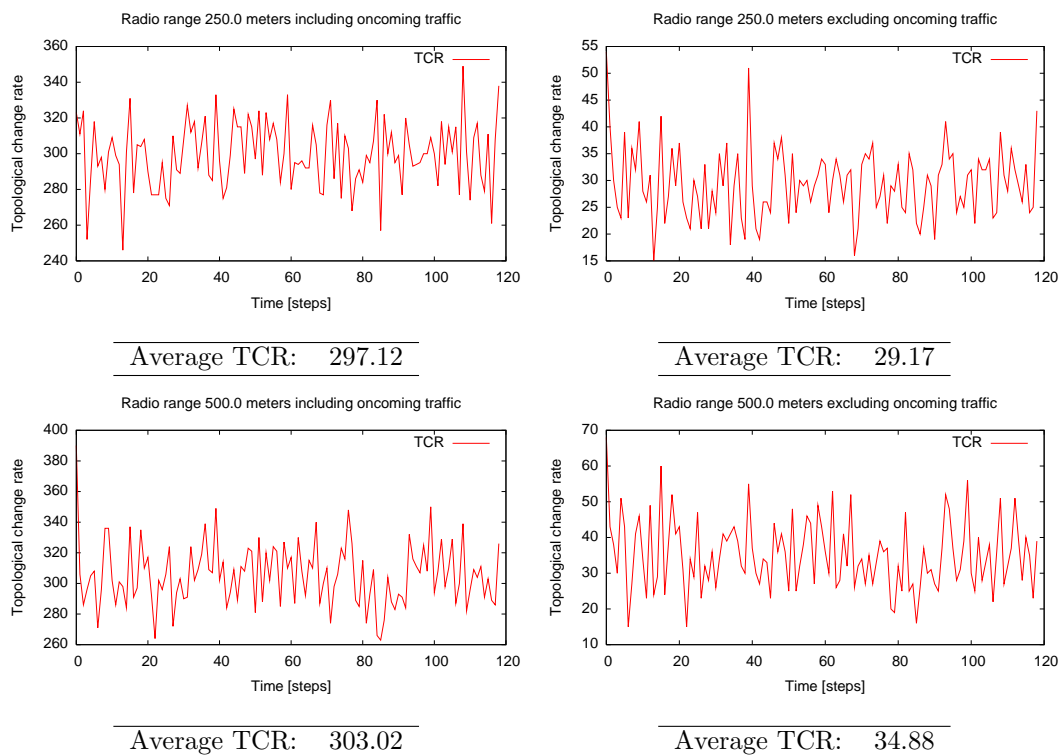
Radio range: 500.0 meters, bin size: 250.0 meters

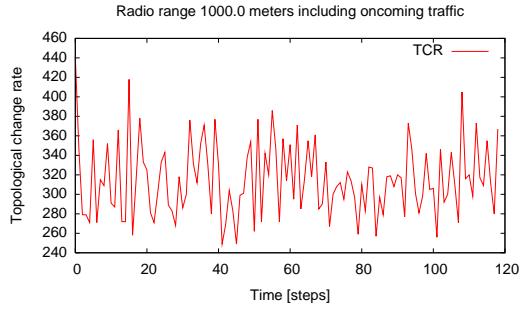


Radio range: 1000.0 meters, bin size: 250.0 meters

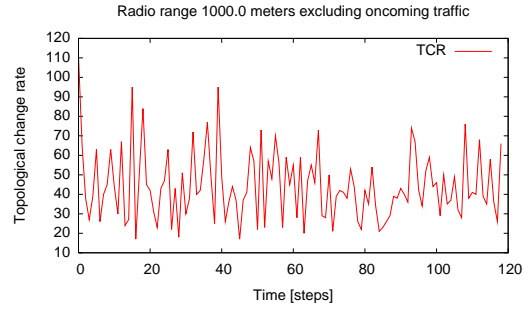


B.6.5. Topological Change Rate (TCR)



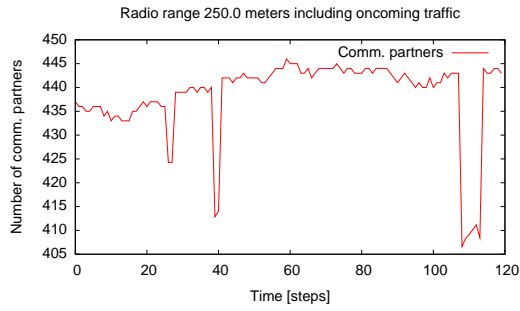


Average TCR: 312.16

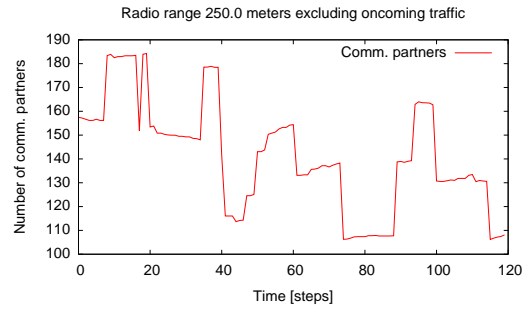


Average TCR: 43.92

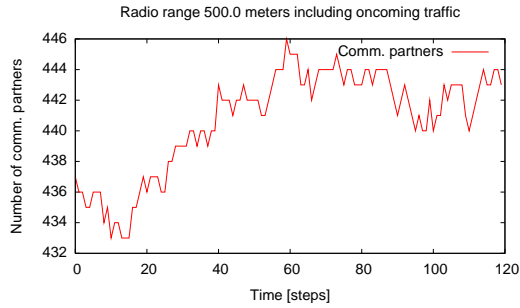
B.6.6. Total number of communication partners



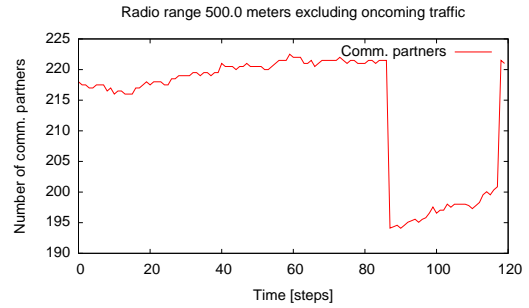
Avg. comm. partners: 438.40
Avg. active nodes: 441.73



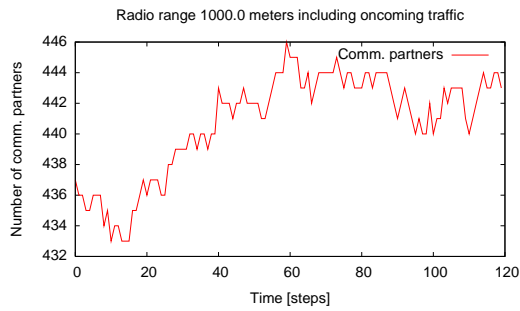
Avg. comm. partners: 141.49
Avg. active nodes: 441.73



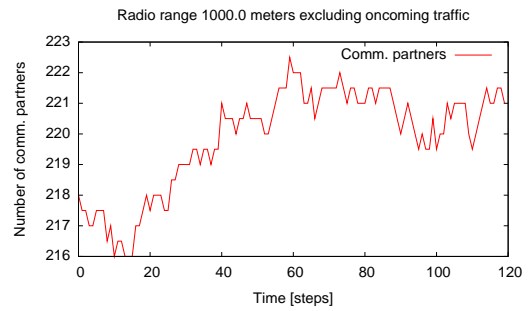
Avg. comm. partners: 440.73
Avg. active nodes: 441.73



Avg. comm. partners: 213.81
Avg. active nodes: 441.73

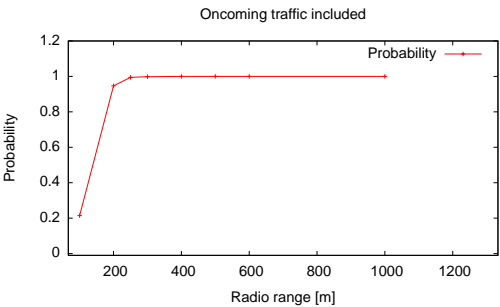


Avg. comm. partners: 440.73
Avg. active nodes: 441.73

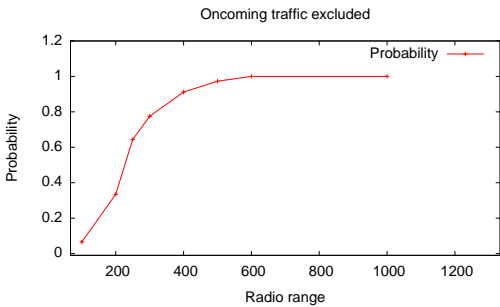


Avg. comm. partners: 219.87
Avg. active nodes: 441.73

B.6.7. Probability of being able to communicate with an arbitrary node



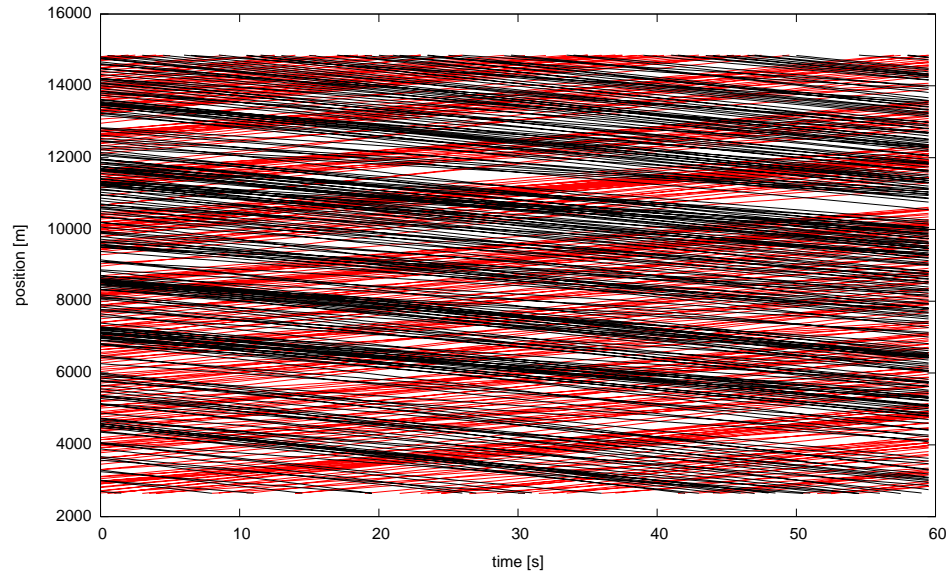
100.0 m:	0.21
200.0 m:	0.95
250.0 m:	0.99
300.0 m:	1.00
400.0 m:	1.00
500.0 m:	1.00
600.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.07
200.0 m:	0.33
250.0 m:	0.64
300.0 m:	0.77
400.0 m:	0.91
500.0 m:	0.97
600.0 m:	1.00
1000.0 m:	1.00

B.7. Scenario “mvmnt-hwgui-03lpd-06-06npkm-02.txt”

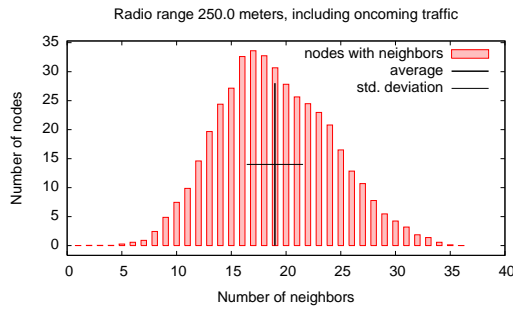
B.7.1. Trajectory plot



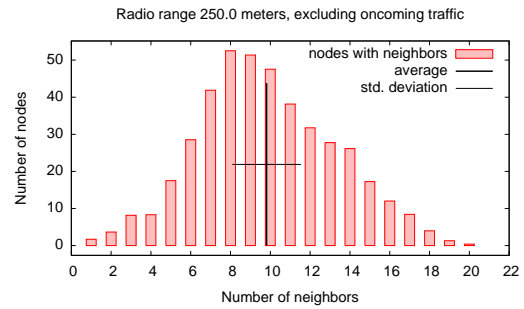
B.7.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	34.19
Number of nodes	515
Number of nodes (up)	266
Number of nodes (down)	249
Average node density [N/km]	36.51
Nodes per km and lane (up) [$N/(km \cdot lane)$]	6
Nodes per km and lane (down) [$N/(km \cdot lane)$]	6
Average number of active nodes	446.06
Average number of active nodes (up)	225.97
Average number of active nodes (down)	220.08
Number of lanes (up)	3
Length of valid area [m]	12217.80
Valid area start [m]	2640.40
Valid area end [m]	14858.20
Maximum CTR (both dirs) [m]	360.89

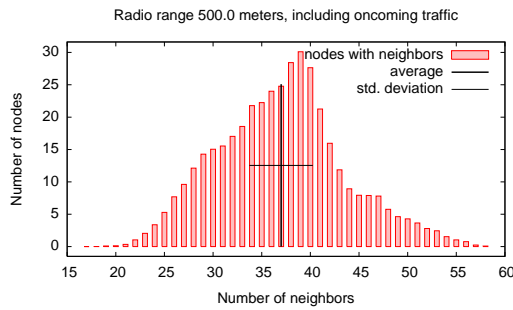
B.7.3. Neighbor histogram



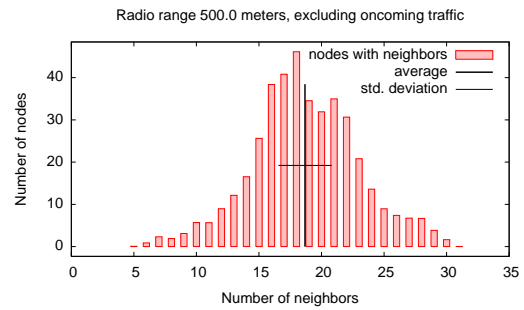
Average:	18.98
Variance:	26.43
Standard deviation:	5.14



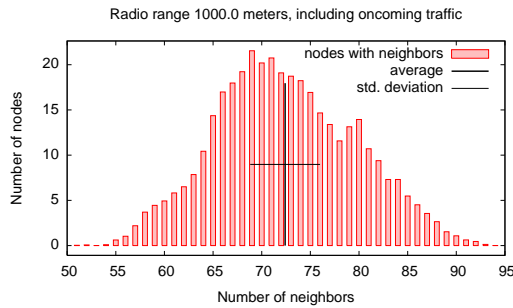
Average:	9.81
Variance:	11.91
Standard deviation:	3.45



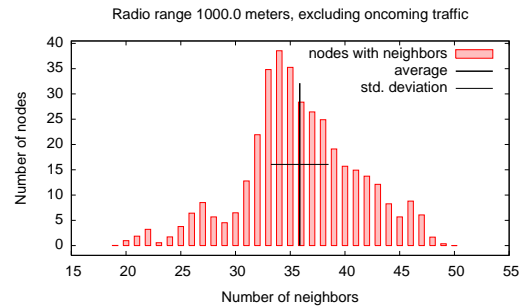
Average:	37.00
Variance:	42.49
Standard deviation:	6.52



Average:	18.68
Variance:	18.15
Standard deviation:	4.26



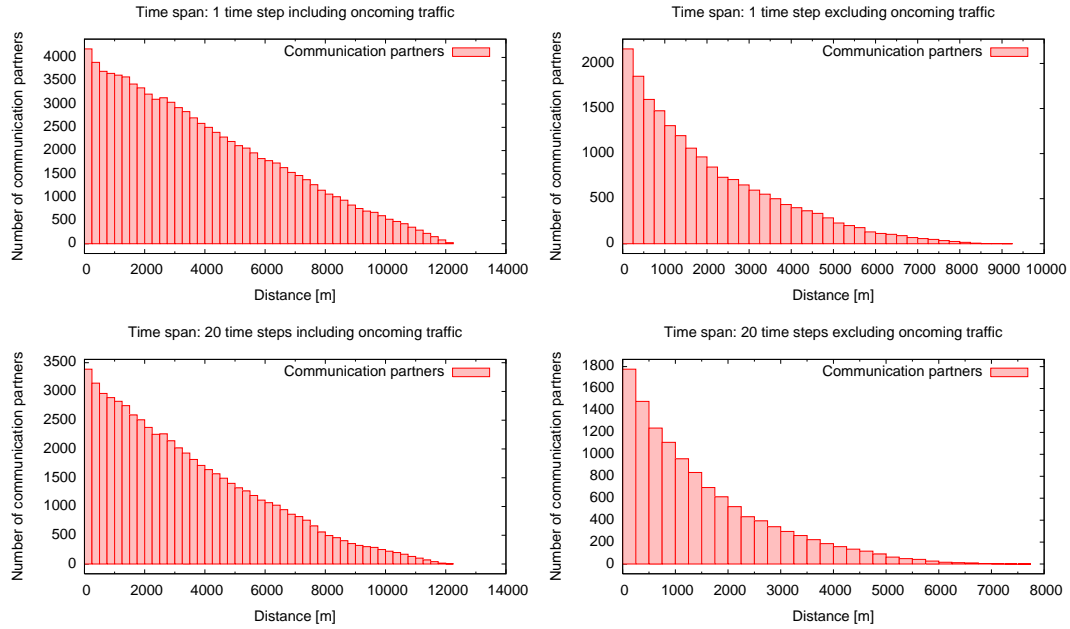
Average:	72.41
Variance:	51.54
Standard deviation:	7.18



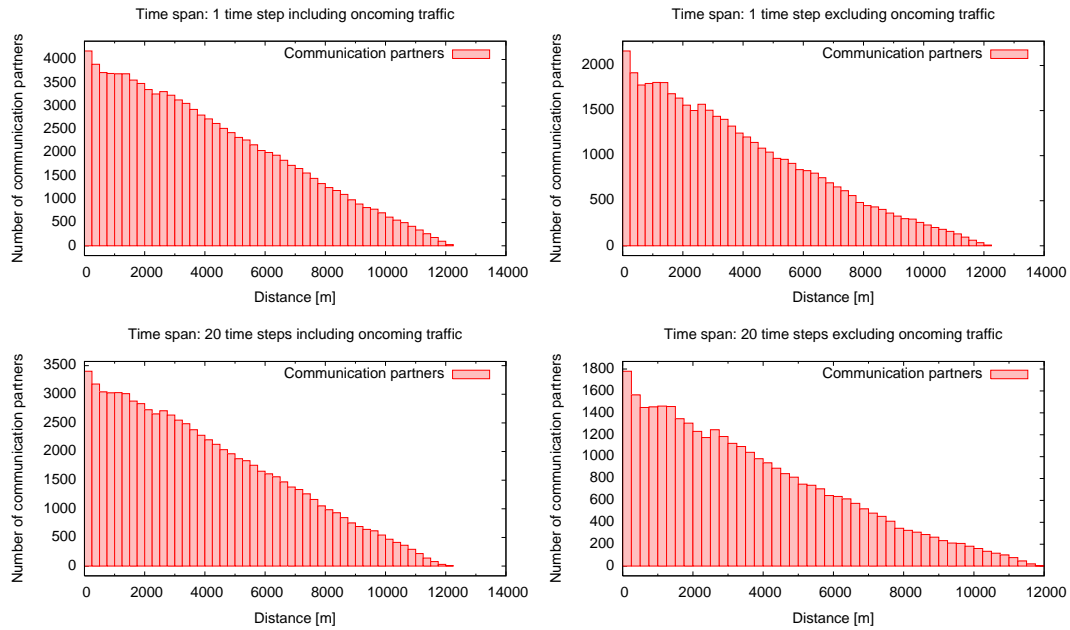
Average:	35.87
Variance:	27.73
Standard deviation:	5.27

B.7.4. Communication partner histogram

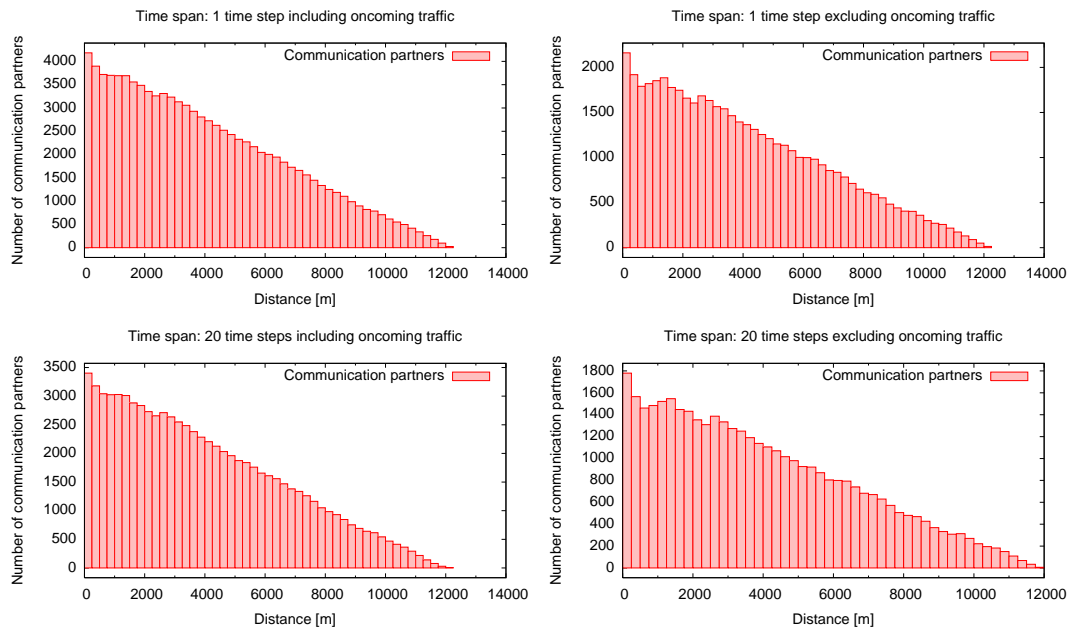
Radio range: 250.0 meters, bin size: 250.0 meters



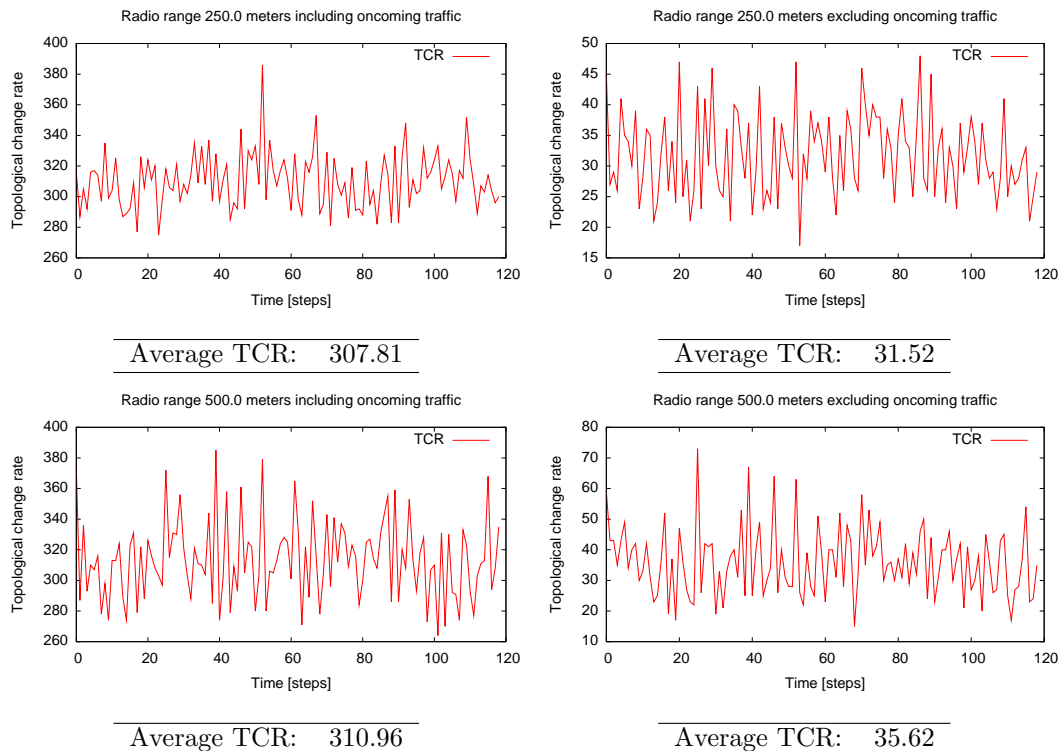
Radio range: 500.0 meters, bin size: 250.0 meters

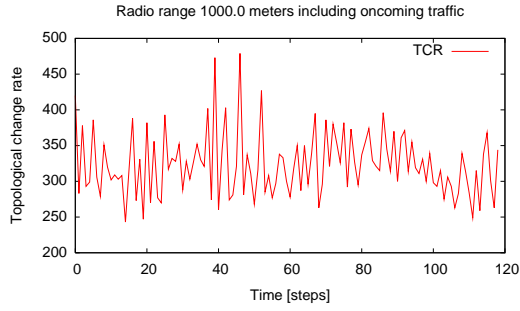


Radio range: 1000.0 meters, bin size: 250.0 meters

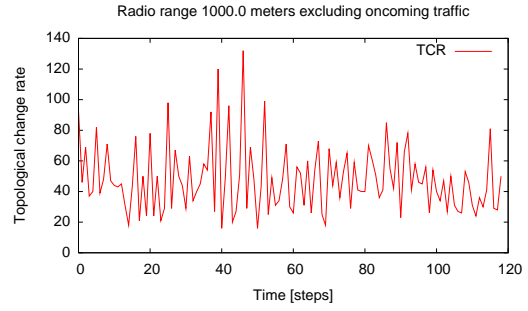


B.7.5. Topological Change Rate (TCR)



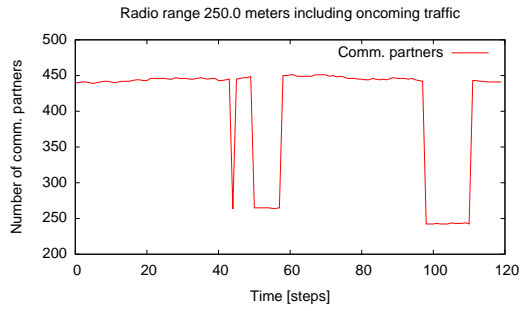


Average TCR: 320.97

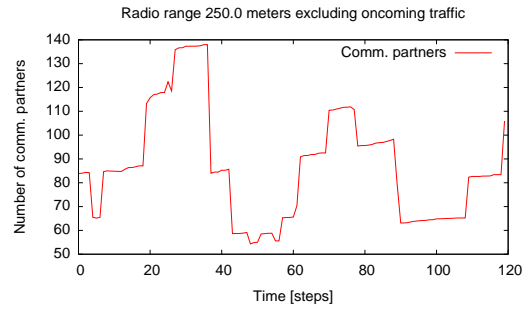


Average TCR: 47.45

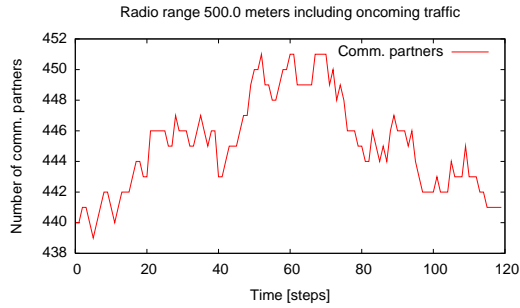
B.7.6. Total number of communication partners



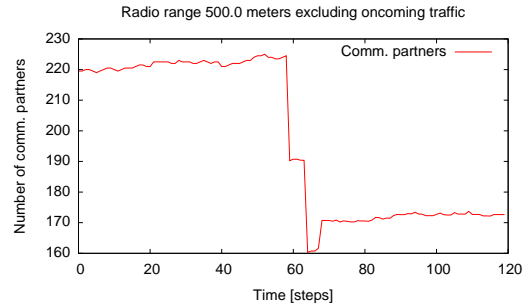
Avg. comm. partners: 409.58
Avg. active nodes: 446.06



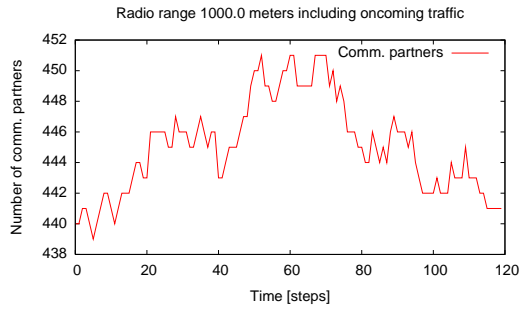
Avg. comm. partners: 87.02
Avg. active nodes: 446.06



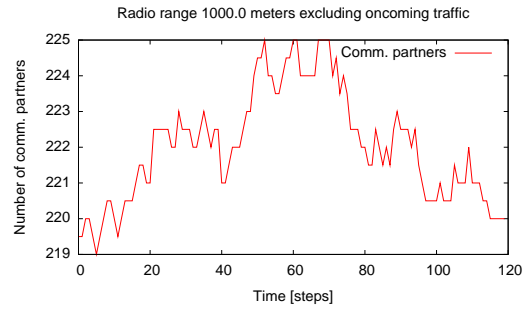
Avg. comm. partners: 445.06
Avg. active nodes: 446.06



Avg. comm. partners: 196.91
Avg. active nodes: 446.06

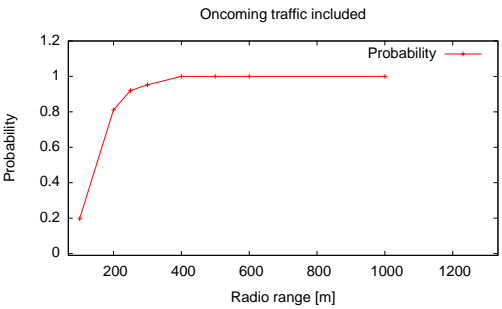


Avg. comm. partners: 445.06
Avg. active nodes: 446.06

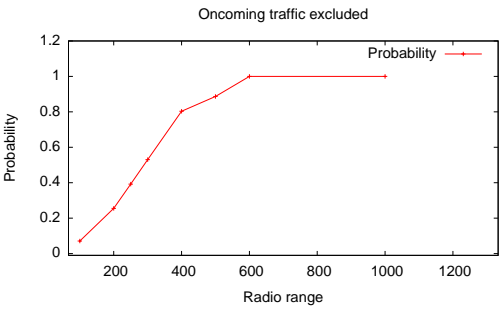


Avg. comm. partners: 222.03
Avg. active nodes: 446.06

B.7.7. Probability of being able to communicate with an arbitrary node



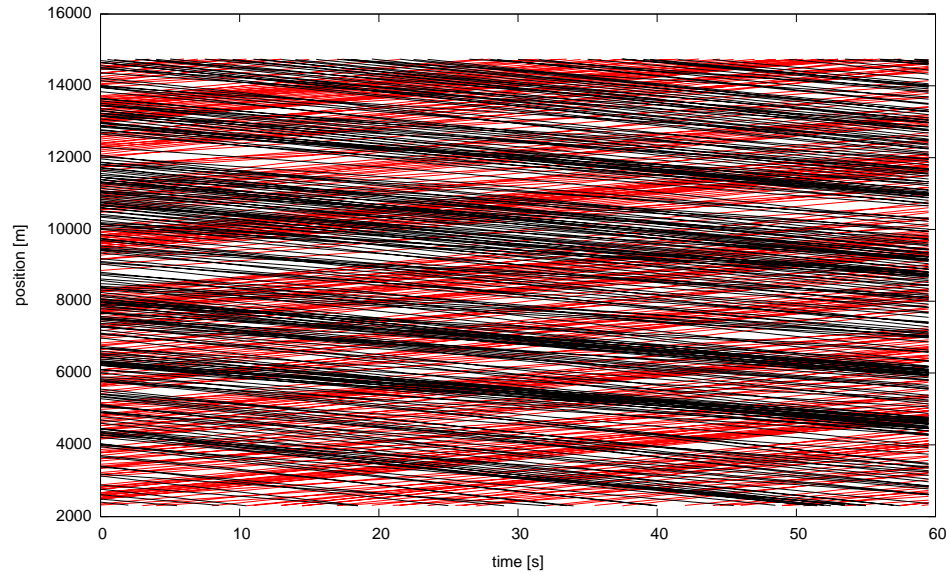
100.0 m:	0.20
200.0 m:	0.81
250.0 m:	0.92
300.0 m:	0.95
400.0 m:	1.00
500.0 m:	1.00
600.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.07
200.0 m:	0.26
250.0 m:	0.39
300.0 m:	0.53
400.0 m:	0.80
500.0 m:	0.89
600.0 m:	1.00
1000.0 m:	1.00

B.8. Scenario “mvmnt-hwgui-03lpd-06-06npkm-03.txt”

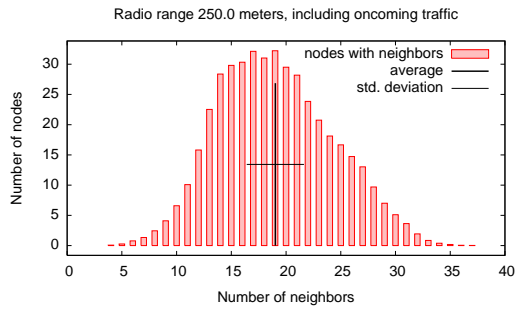
B.8.1. Trajectory plot



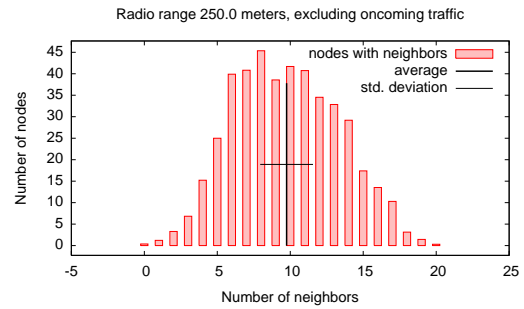
B.8.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	33.84
Number of nodes	523
Number of nodes (up)	268
Number of nodes (down)	255
Average node density [N/km]	36.87
Nodes per km and lane (up) [$N/(km \cdot lane)$]	6
Nodes per km and lane (down) [$N/(km \cdot lane)$]	6
Average number of active nodes	459.04
Average number of active nodes (up)	233.74
Average number of active nodes (down)	225.30
Number of lanes (up)	3
Length of valid area [m]	12450.10
Valid area start [m]	2298.20
Valid area end [m]	14748.30
Maximum CTR (both dirs) [m]	262.51

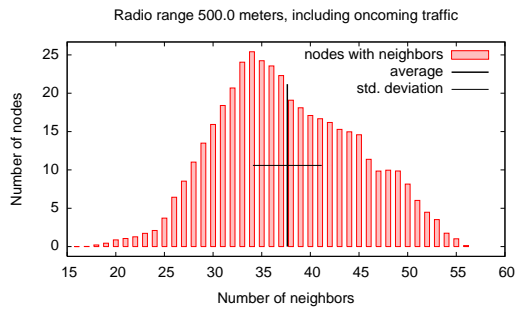
B.8.3. Neighbor histogram



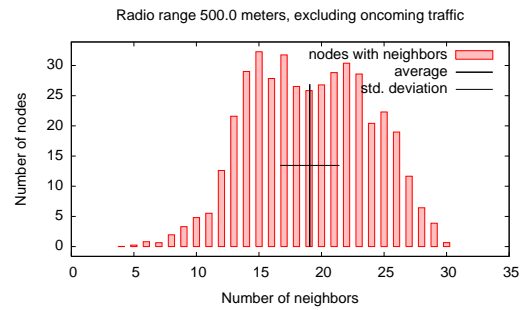
Average:	19.02
Variance:	27.33
Standard deviation:	5.23



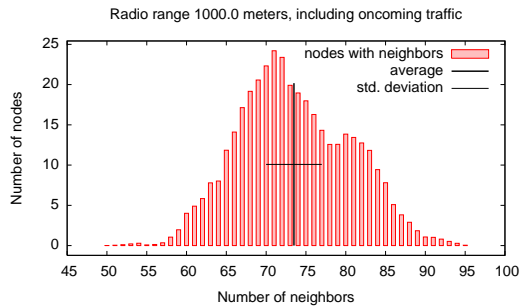
Average:	9.75
Variance:	13.07
Standard deviation:	3.61



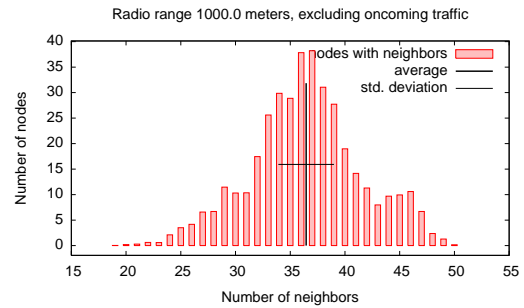
Average:	37.63
Variance:	50.06
Standard deviation:	7.08



Average:	19.06
Variance:	22.40
Standard deviation:	4.73



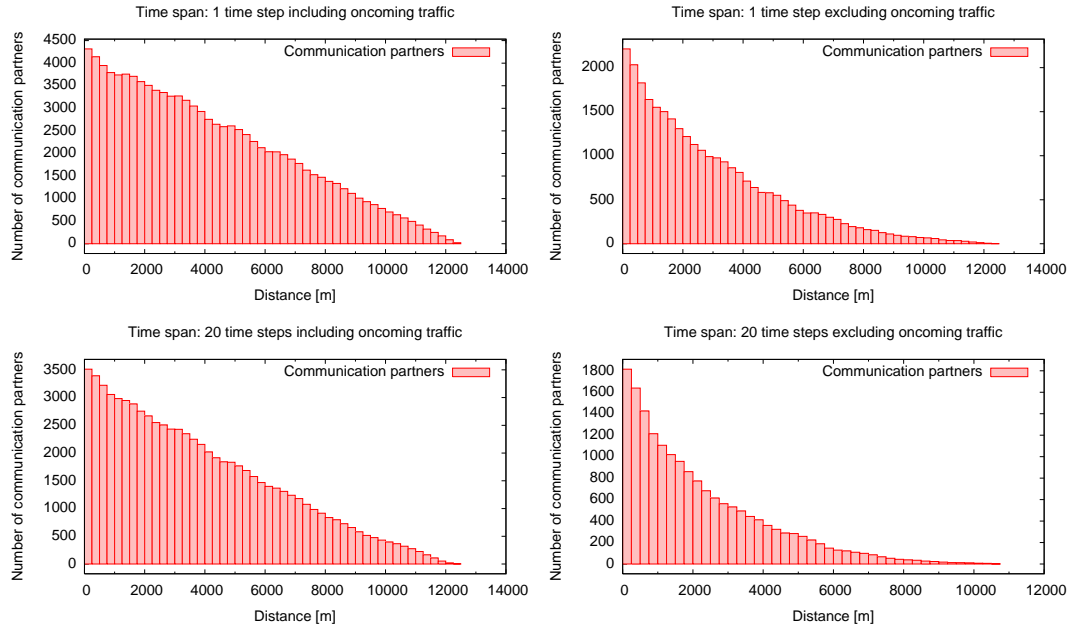
Average:	73.50
Variance:	49.04
Standard deviation:	7.00



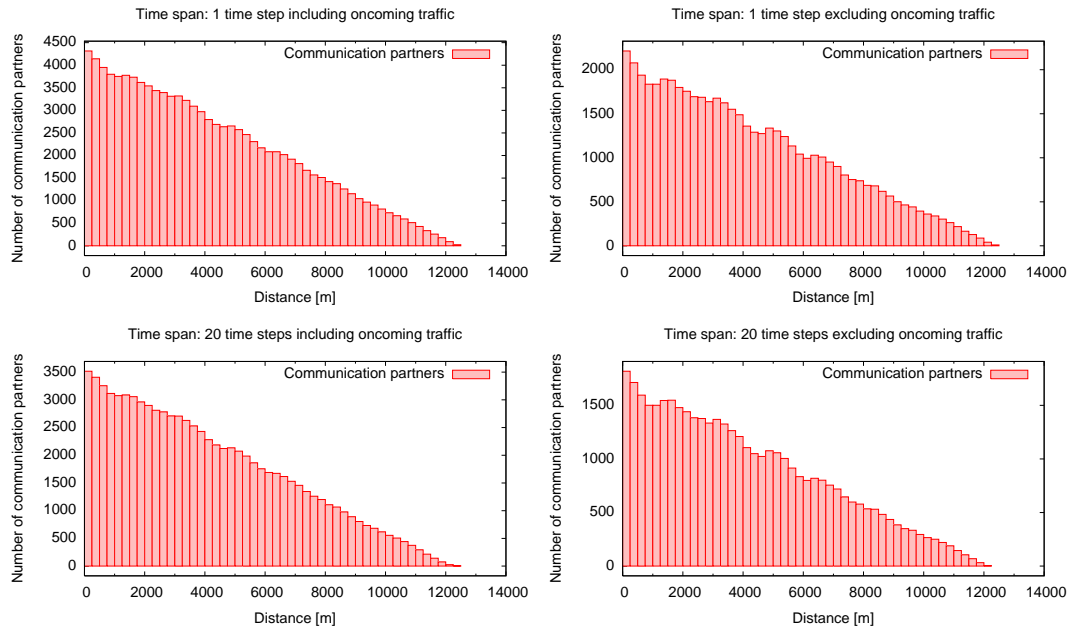
Average:	36.45
Variance:	25.82
Standard deviation:	5.08

B.8.4. Communication partner histogram

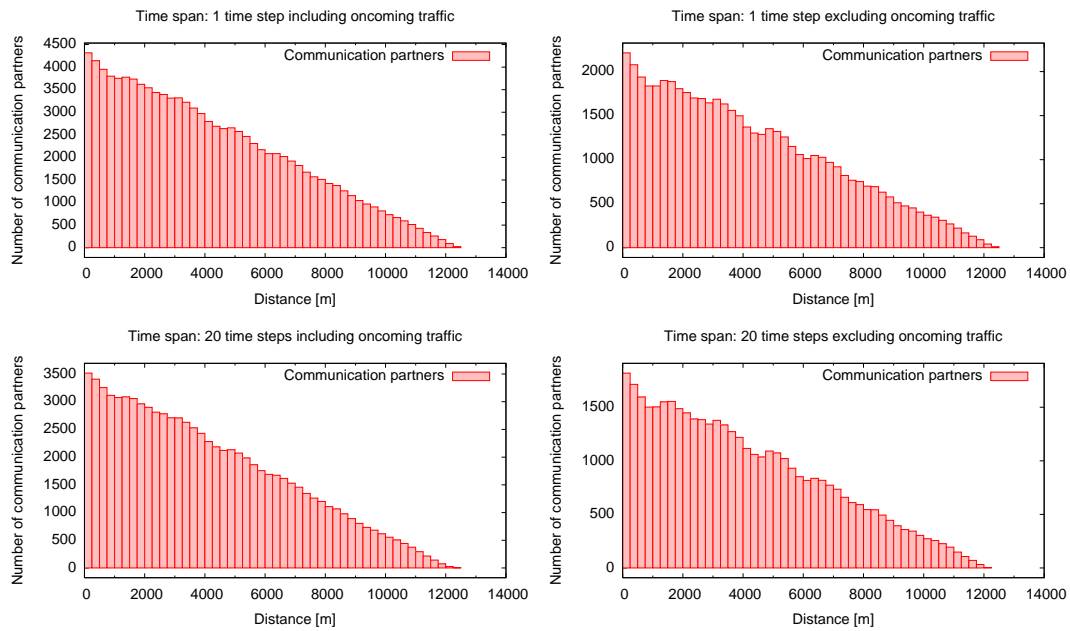
Radio range: 250.0 meters, bin size: 250.0 meters



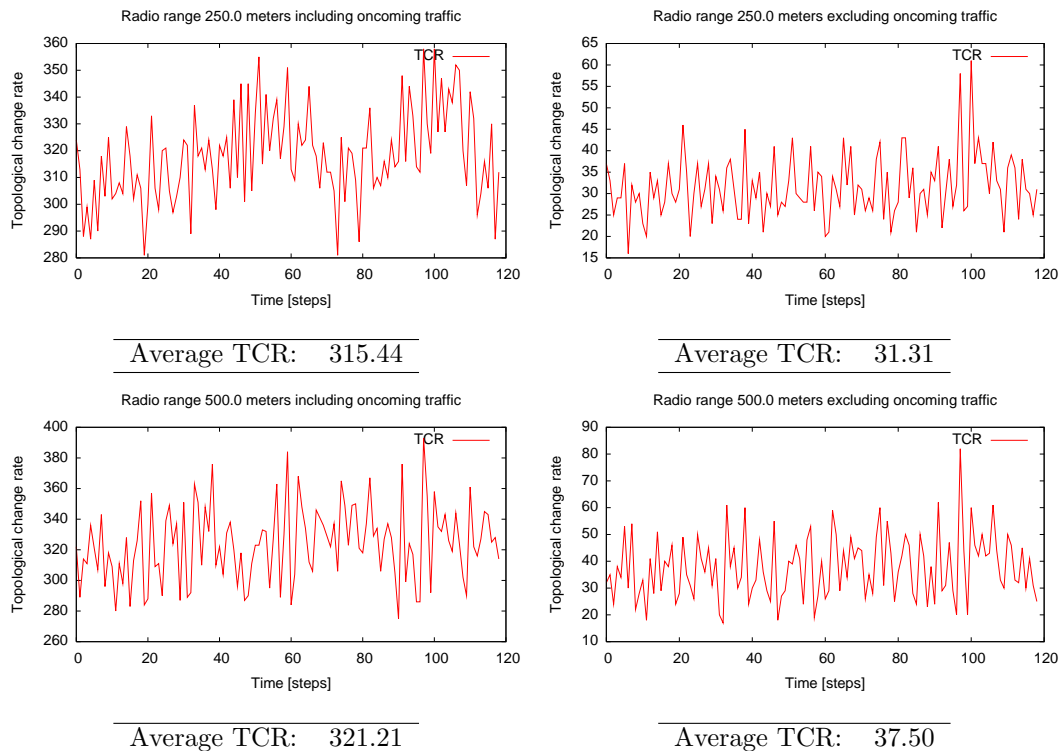
Radio range: 500.0 meters, bin size: 250.0 meters

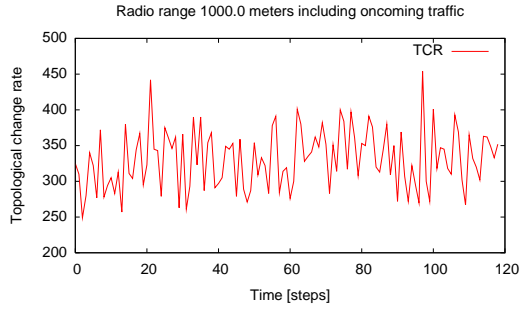


Radio range: 1000.0 meters, bin size: 250.0 meters

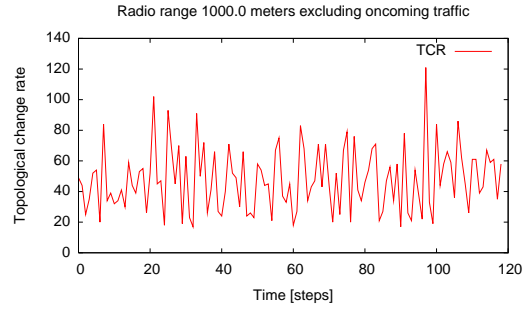


B.8.5. Topological Change Rate (TCR)



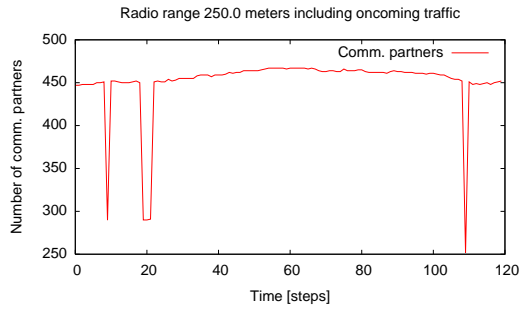


Average TCR: 328.13

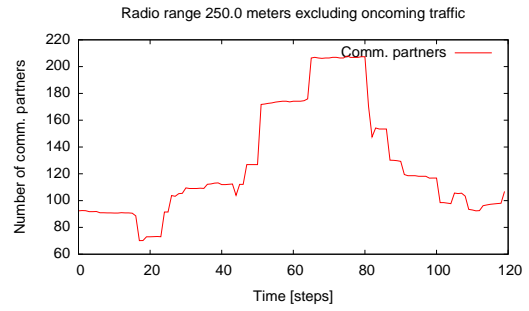


Average TCR: 47.43

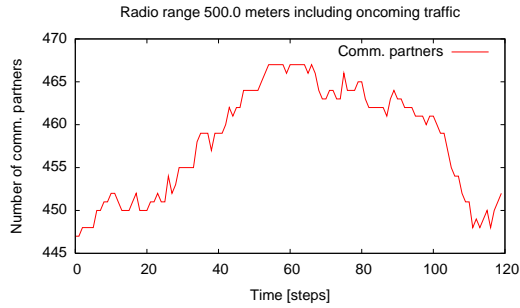
B.8.6. Total number of communication partners



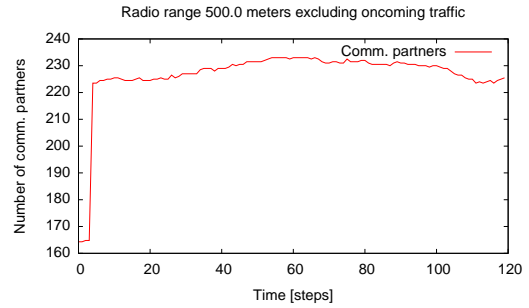
Avg. comm. partners: 451.04
Avg. active nodes: 459.04



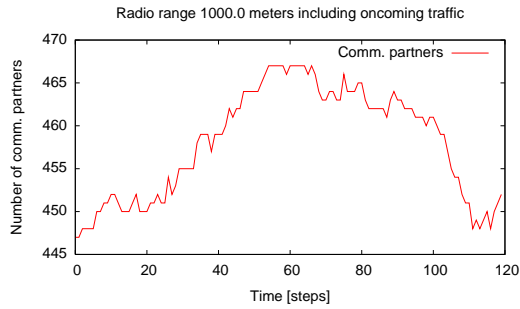
Avg. comm. partners: 127.45
Avg. active nodes: 459.04



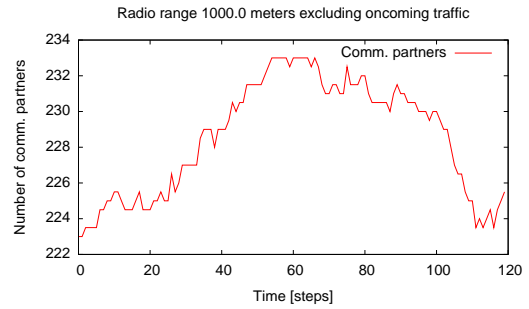
Avg. comm. partners: 458.04
Avg. active nodes: 459.04



Avg. comm. partners: 226.56
Avg. active nodes: 459.04

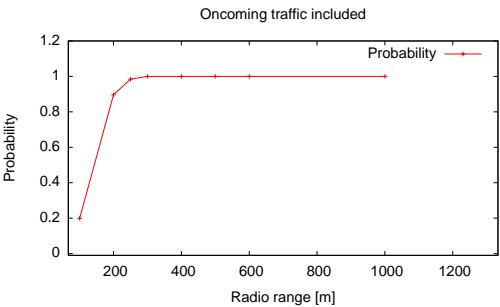


Avg. comm. partners: 458.04
Avg. active nodes: 459.04

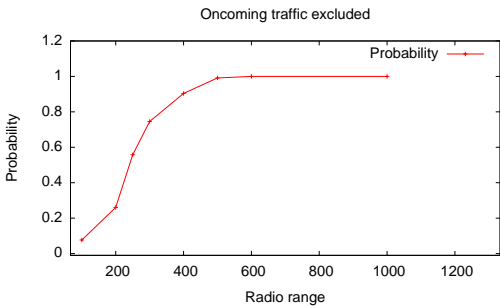


Avg. comm. partners: 228.52
Avg. active nodes: 459.04

B.8.7. Probability of being able to communicate with an arbitrary node



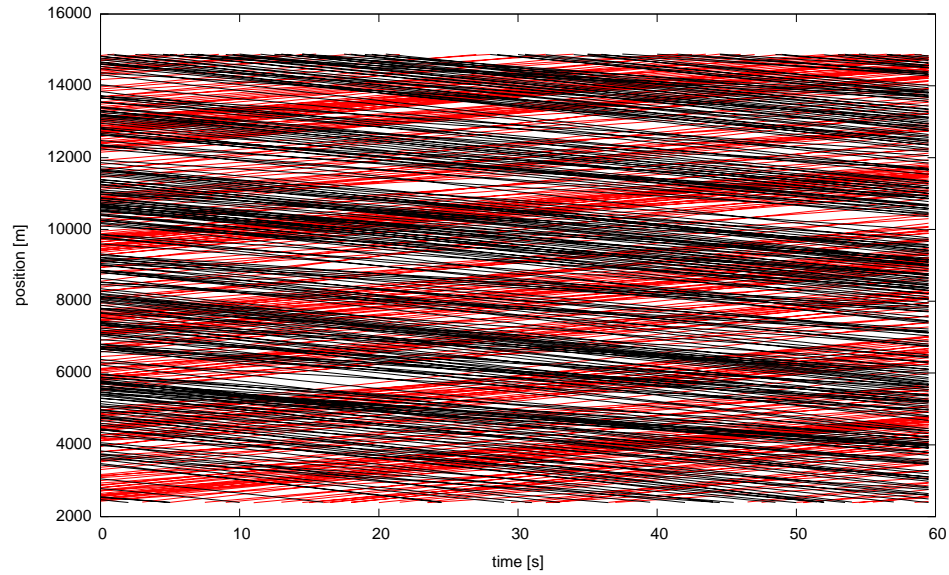
100.0 m:	0.20
200.0 m:	0.90
250.0 m:	0.98
300.0 m:	1.00
400.0 m:	1.00
500.0 m:	1.00
600.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.08
200.0 m:	0.26
250.0 m:	0.56
300.0 m:	0.75
400.0 m:	0.90
500.0 m:	0.99
600.0 m:	1.00
1000.0 m:	1.00

B.9. Scenario “mvmnt-hwgui-03lpd-06-06npkm-04.txt”

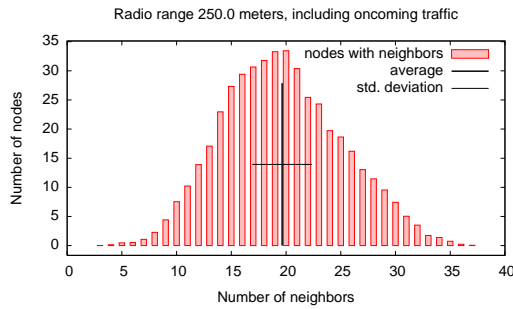
B.9.1. Trajectory plot



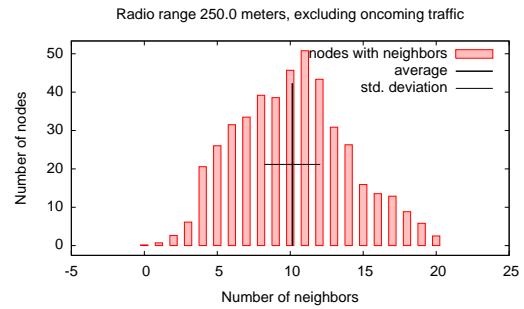
B.9.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	33.89
Number of nodes	536
Number of nodes (up)	271
Number of nodes (down)	265
Average node density [N/km]	37.82
Nodes per km and lane (up) [$N/(km \cdot lane)$]	6
Nodes per km and lane (down) [$N/(km \cdot lane)$]	6
Average number of active nodes	472.66
Average number of active nodes (up)	239.80
Average number of active nodes (down)	232.86
Number of lanes (up)	3
Length of valid area [m]	12497.90
Valid area start [m]	2387.30
Valid area end [m]	14885.20
Maximum CTR (both dirs) [m]	301.00

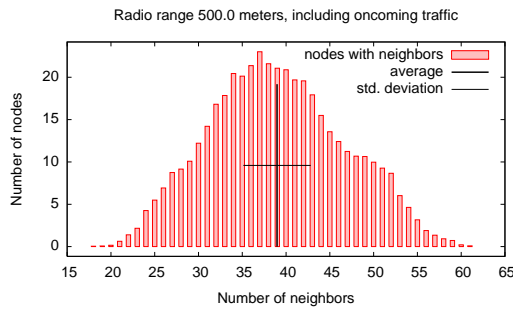
B.9.3. Neighbor histogram



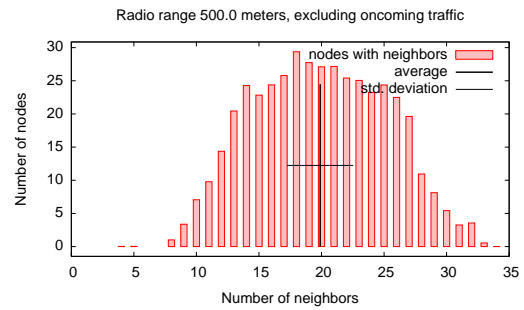
Average:	19.64
Variance:	29.64
Standard deviation:	5.44



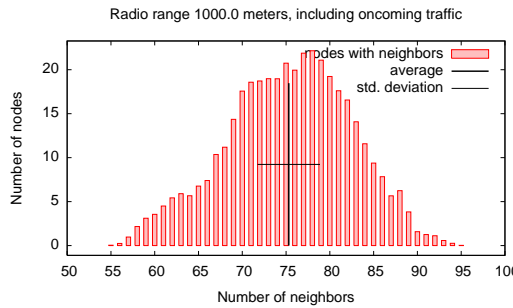
Average:	10.14
Variance:	14.61
Standard deviation:	3.82



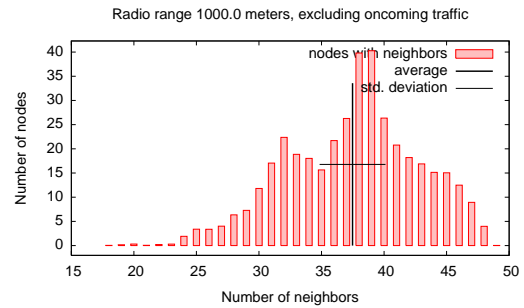
Average:	38.97
Variance:	59.14
Standard deviation:	7.69



Average:	19.89
Variance:	27.95
Standard deviation:	5.29



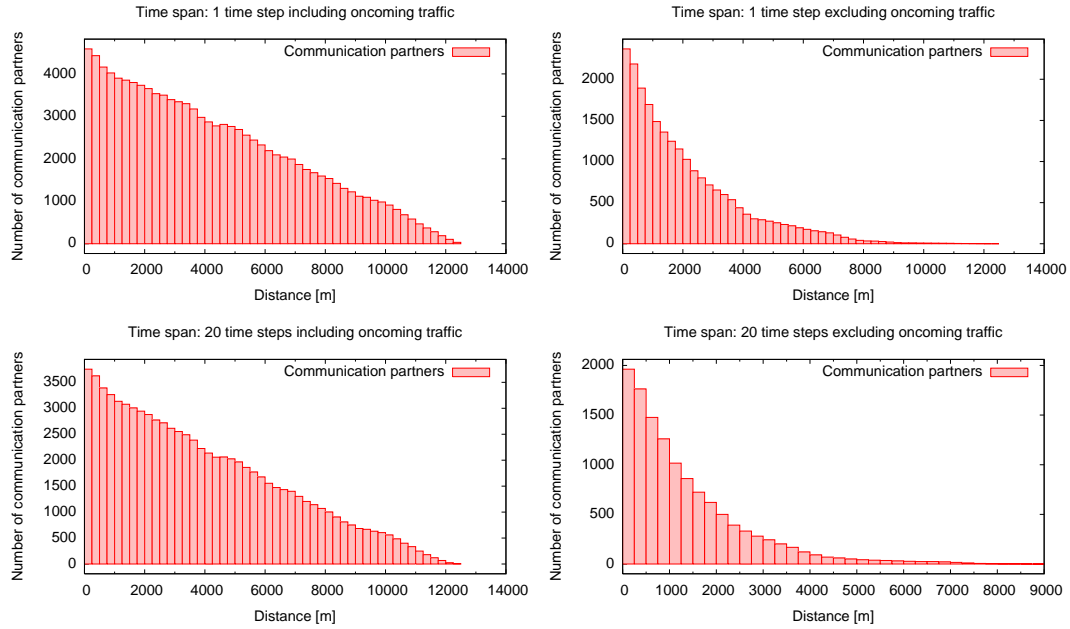
Average:	75.31
Variance:	50.78
Standard deviation:	7.13



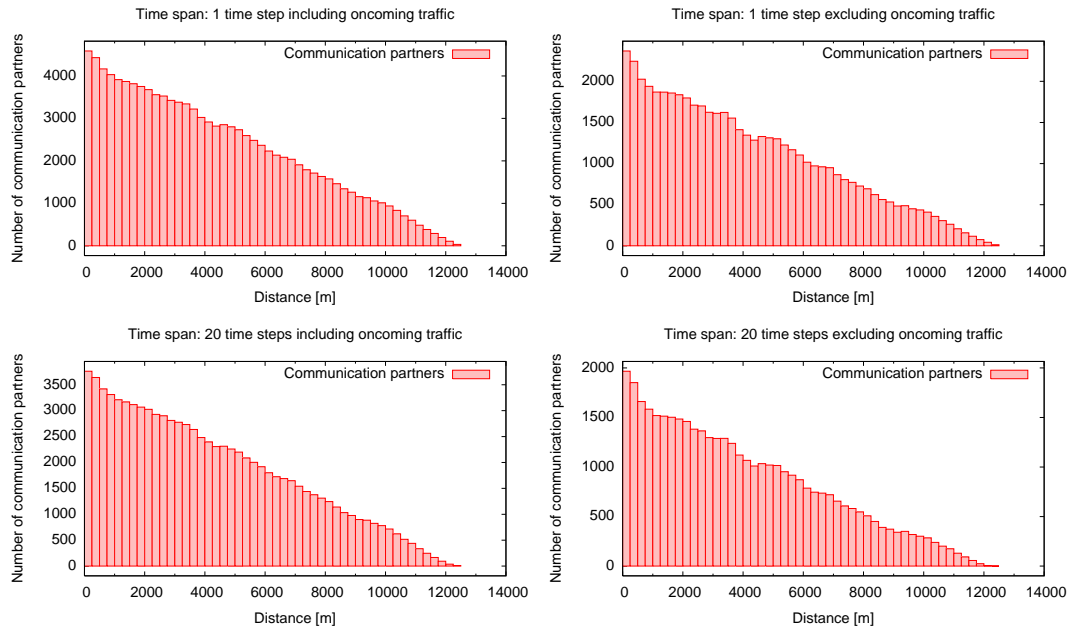
Average:	37.48
Variance:	27.79
Standard deviation:	5.27

B.9.4. Communication partner histogram

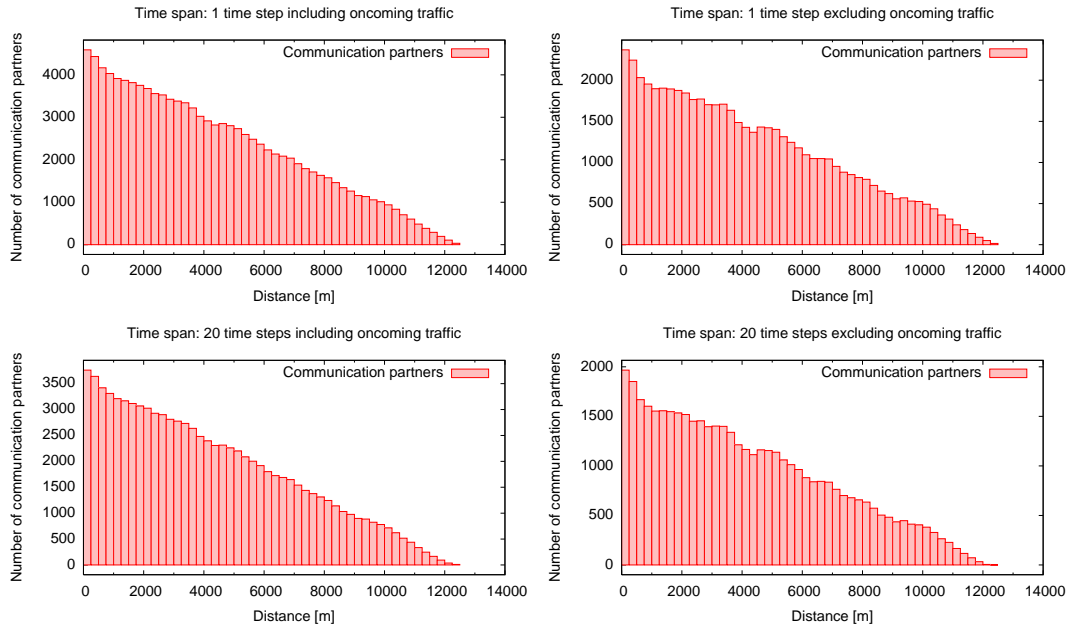
Radio range: 250.0 meters, bin size: 250.0 meters



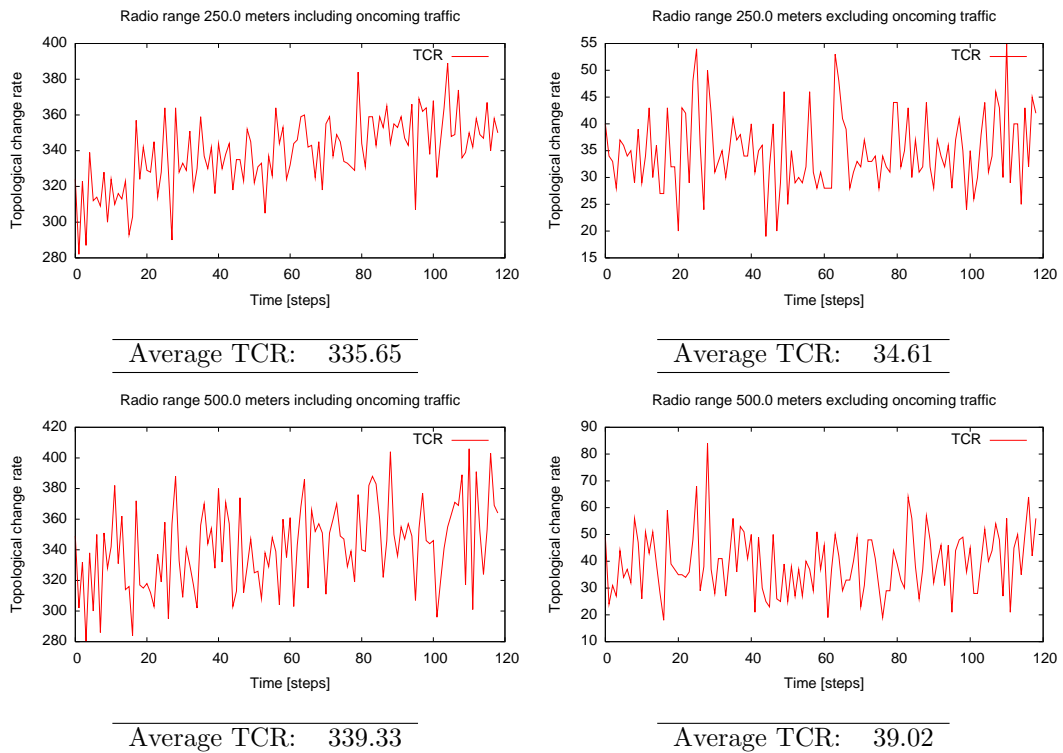
Radio range: 500.0 meters, bin size: 250.0 meters

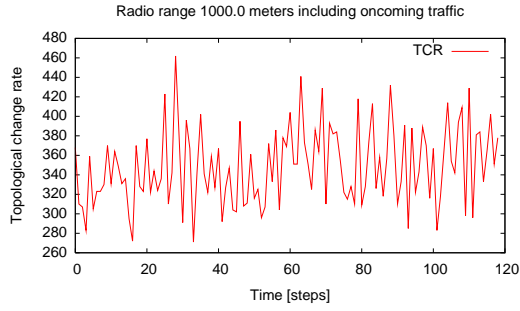


Radio range: 1000.0 meters, bin size: 250.0 meters

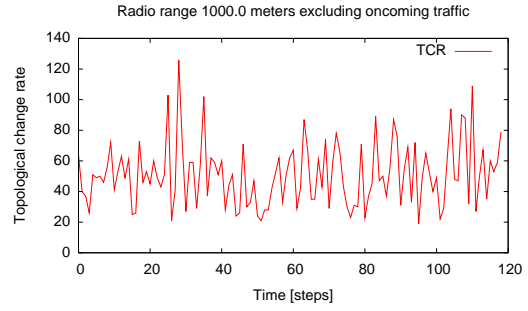


B.9.5. Topological Change Rate (TCR)



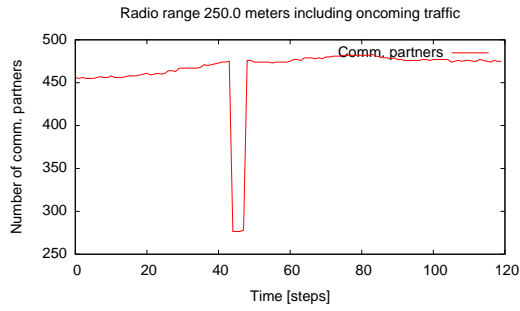


Average TCR: 345.94

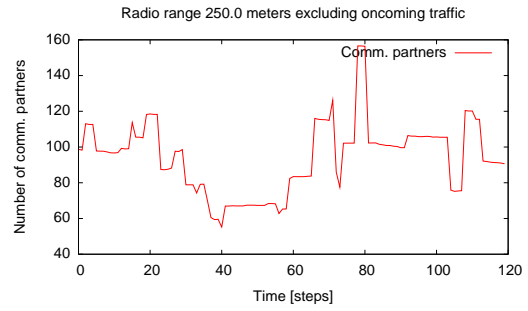


Average TCR: 50.68

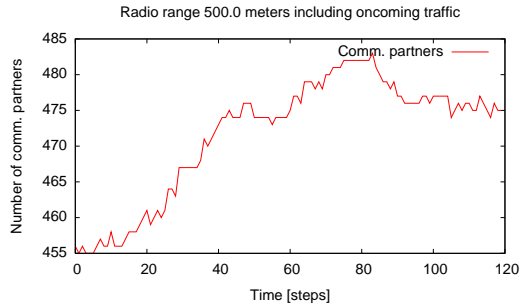
B.9.6. Total number of communication partners



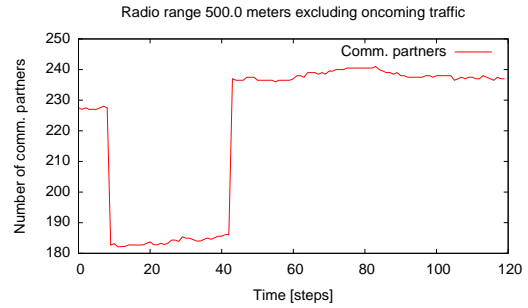
Avg. comm. partners: 465.07
Avg. active nodes: 472.66



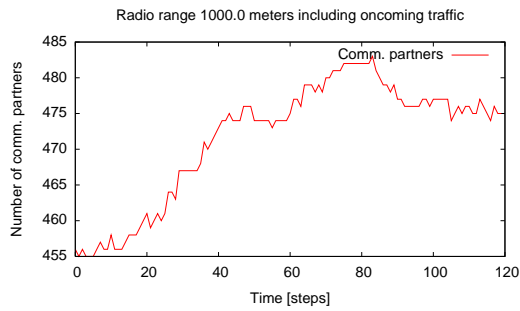
Avg. comm. partners: 94.02
Avg. active nodes: 472.66



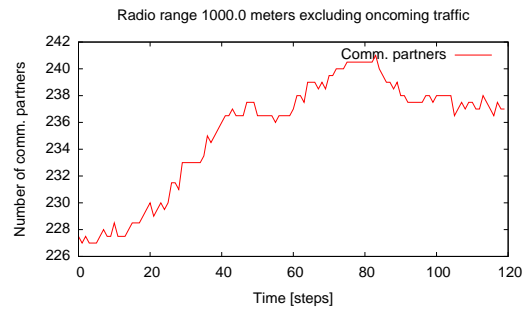
Avg. comm. partners: 471.66
Avg. active nodes: 472.66



Avg. comm. partners: 221.90
Avg. active nodes: 472.66

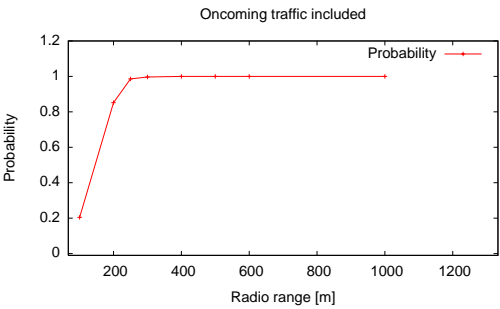


Avg. comm. partners: 471.66
Avg. active nodes: 472.66

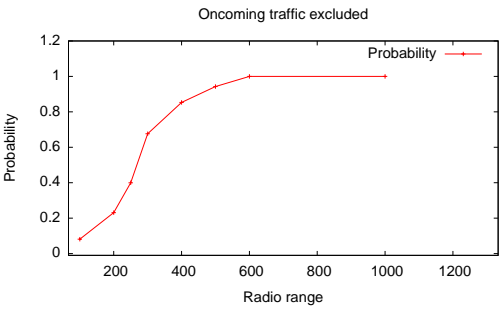


Avg. comm. partners: 235.33
Avg. active nodes: 472.66

B.9.7. Probability of being able to communicate with an arbitrary node



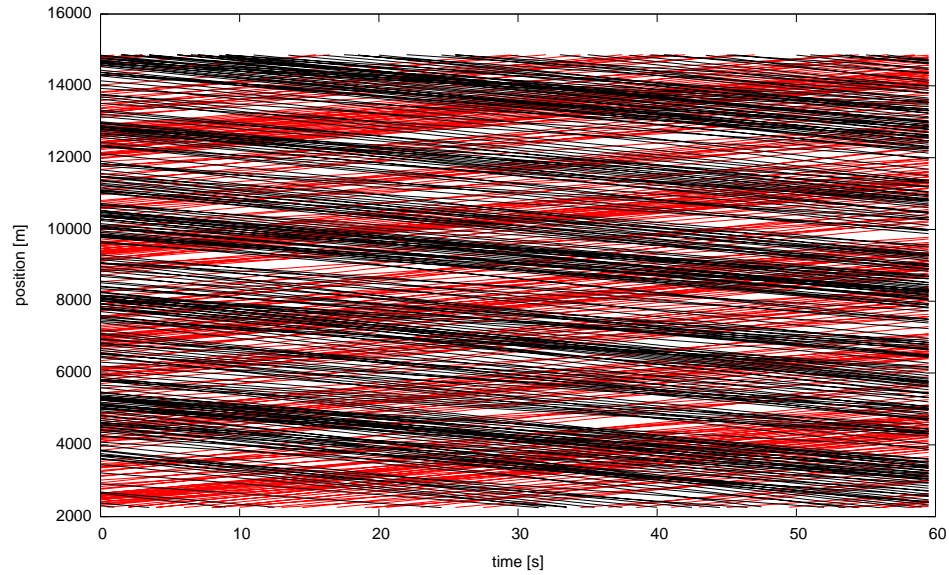
100.0 m:	0.20
200.0 m:	0.85
250.0 m:	0.99
300.0 m:	1.00
400.0 m:	1.00
500.0 m:	1.00
600.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.08
200.0 m:	0.23
250.0 m:	0.40
300.0 m:	0.68
400.0 m:	0.85
500.0 m:	0.94
600.0 m:	1.00
1000.0 m:	1.00

B.10. Scenario “mvmnt-hwgui-03lpd-06-06npkm-05.txt”

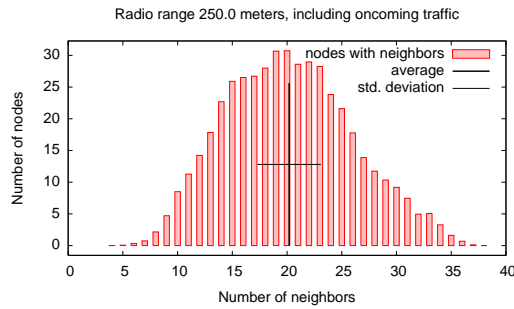
B.10.1. Trajectory plot



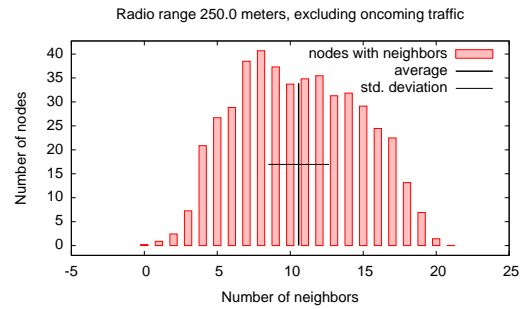
B.10.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	33.74
Number of nodes	538
Number of nodes (up)	271
Number of nodes (down)	267
Average node density [N/km]	38.34
Nodes per km and lane (up) [$N/(km \cdot lane)$]	6
Nodes per km and lane (down) [$N/(km \cdot lane)$]	6
Average number of active nodes	483.91
Average number of active nodes (up)	243.03
Average number of active nodes (down)	240.88
Number of lanes (up)	3
Length of valid area [m]	12620.80
Valid area start [m]	2247.70
Valid area end [m]	14868.50
Maximum CTR (both dirs) [m]	291.91

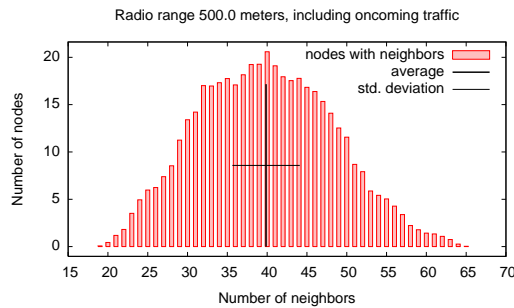
B.10.3. Neighbor histogram



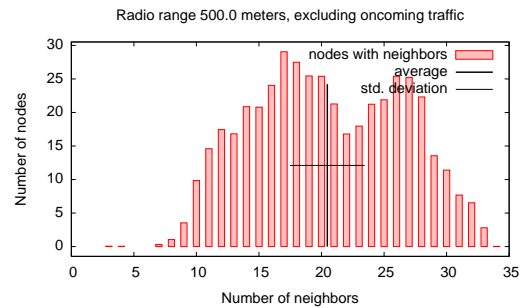
Average:	20.19
Variance:	33.59
Standard deviation:	5.80



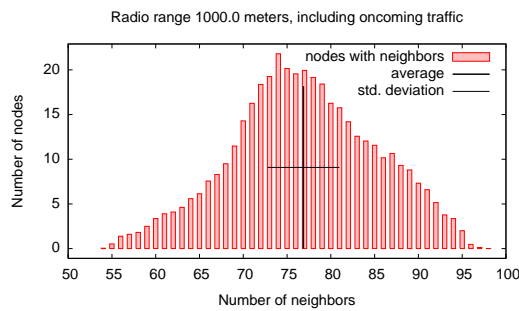
Average:	10.58
Variance:	17.30
Standard deviation:	4.16



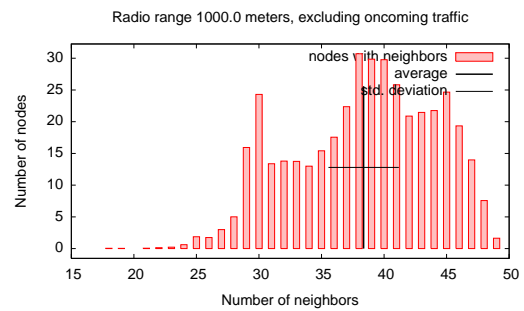
Average:	39.86
Variance:	71.76
Standard deviation:	8.47



Average:	20.46
Variance:	35.56
Standard deviation:	5.96



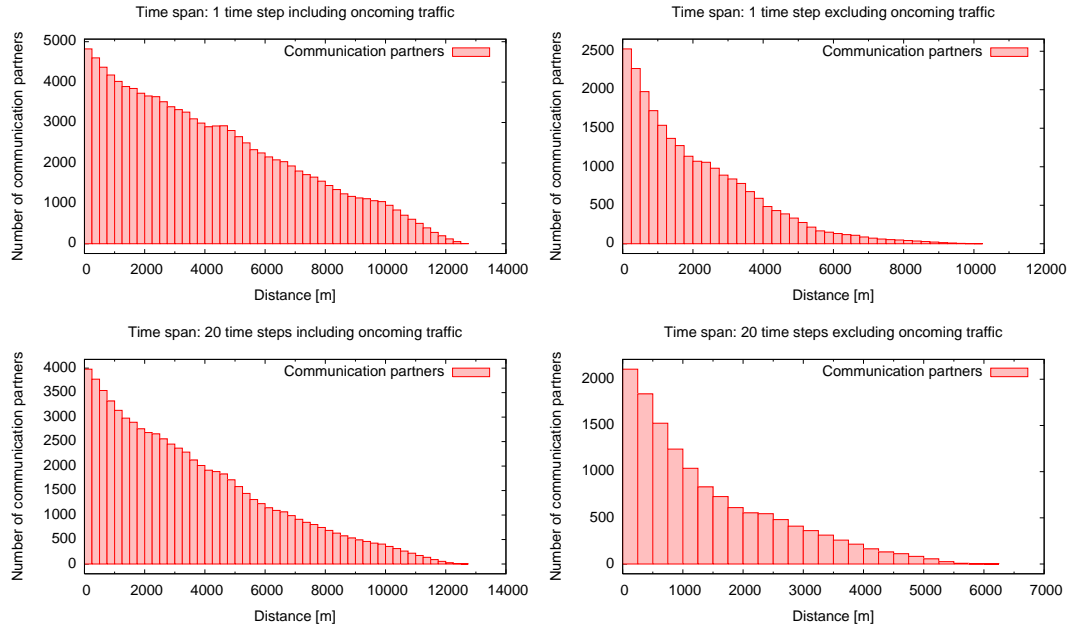
Average:	76.87
Variance:	67.40
Standard deviation:	8.21



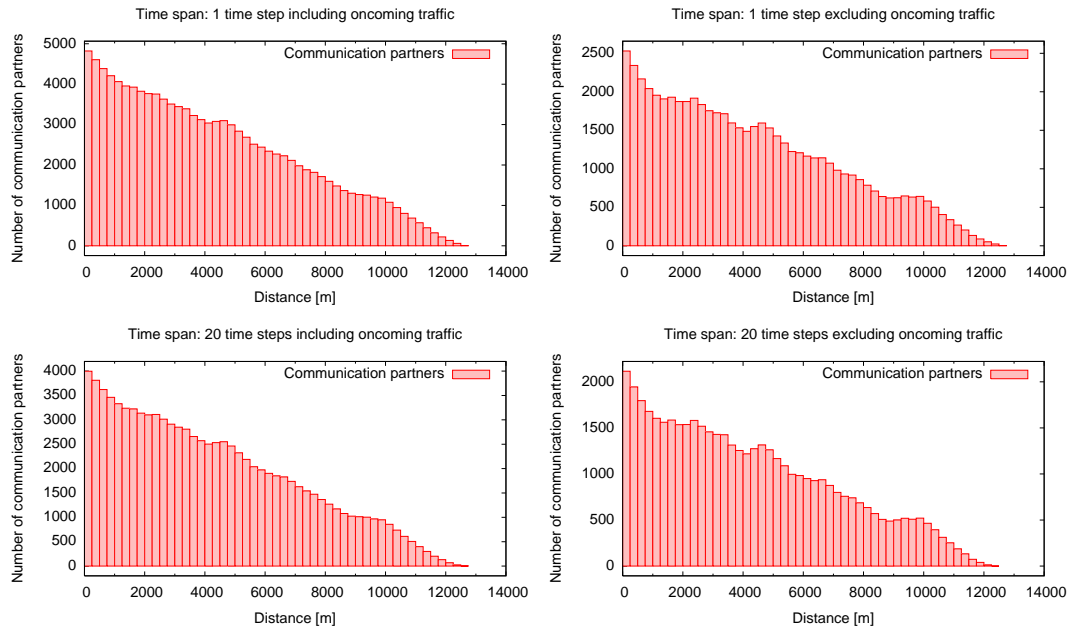
Average:	38.37
Variance:	31.70
Standard deviation:	5.63

B.10.4. Communication partner histogram

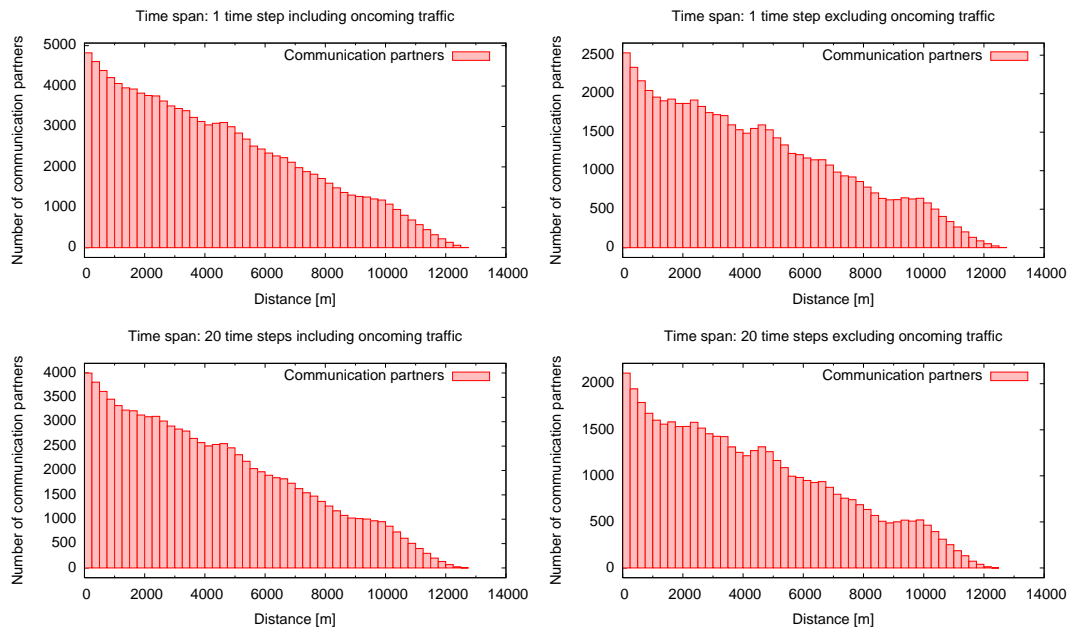
Radio range: 250.0 meters, bin size: 250.0 meters



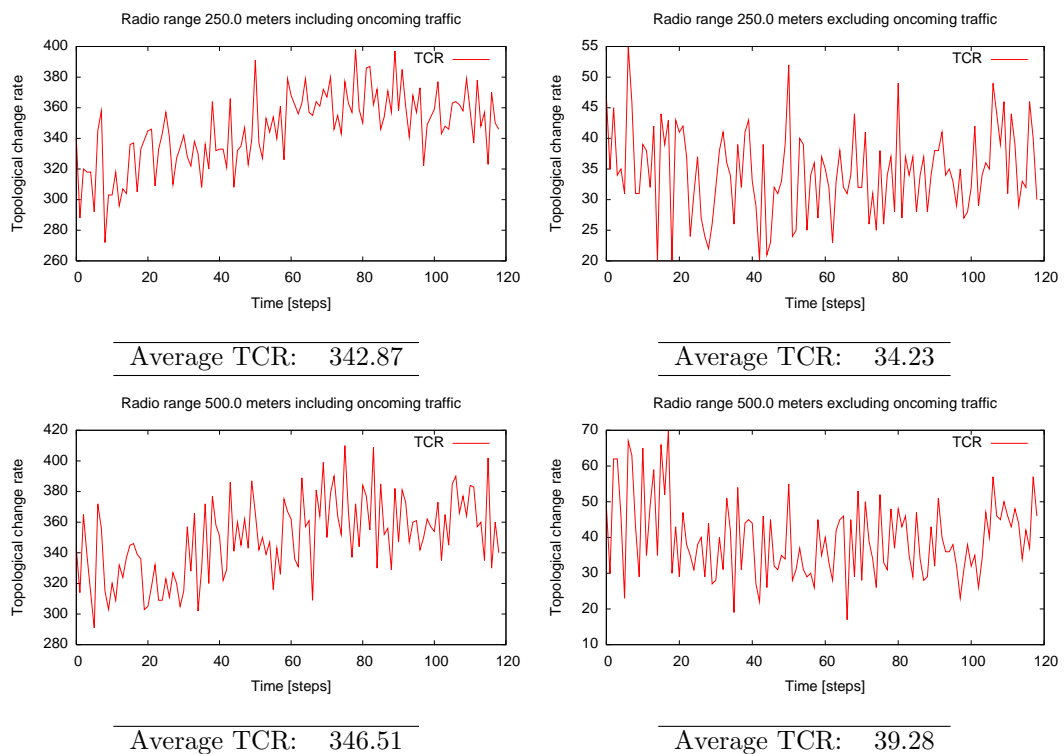
Radio range: 500.0 meters, bin size: 250.0 meters

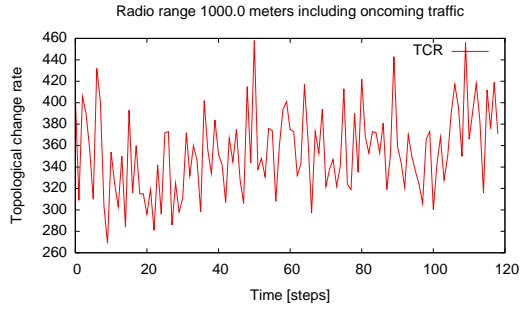


Radio range: 1000.0 meters, bin size: 250.0 meters

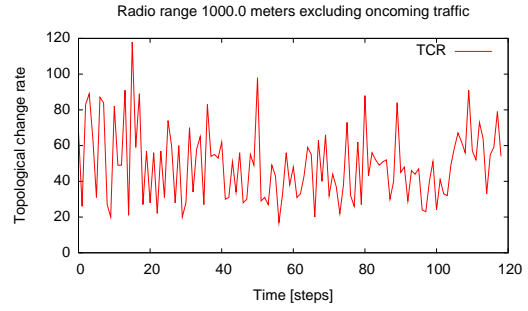


B.10.5. Topological Change Rate (TCR)



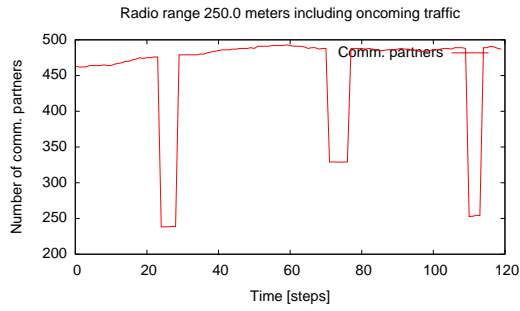


Average TCR: 351.33

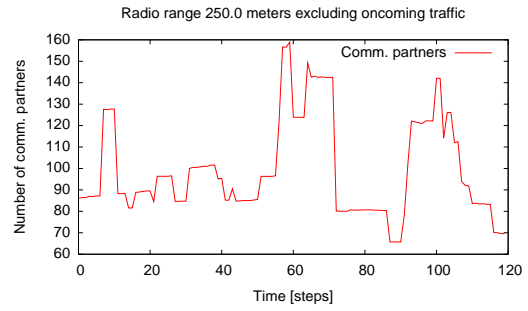


Average TCR: 48.87

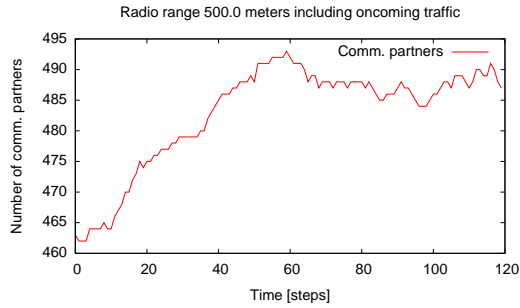
B.10.6. Total number of communication partners



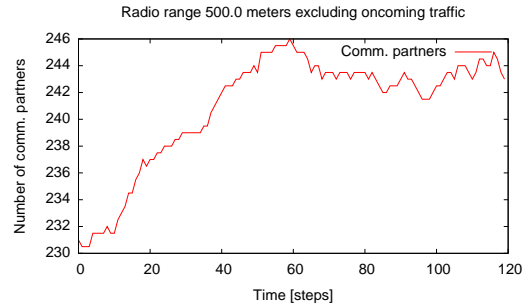
Avg. comm. partners: 457.19
Avg. active nodes: 483.91



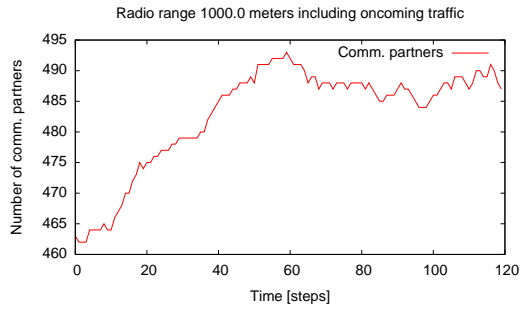
Avg. comm. partners: 99.21
Avg. active nodes: 483.91



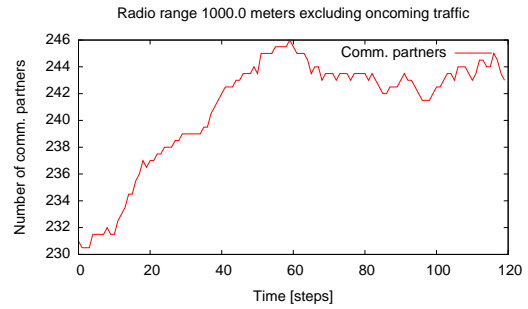
Avg. comm. partners: 482.91
Avg. active nodes: 483.91



Avg. comm. partners: 240.95
Avg. active nodes: 483.91

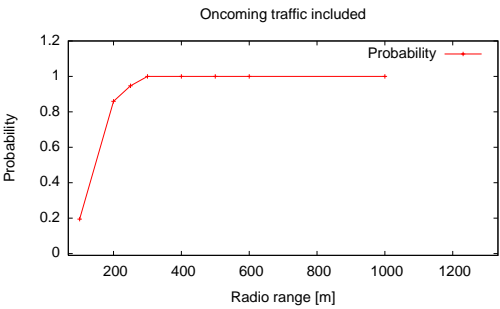


Avg. comm. partners: 482.91
Avg. active nodes: 483.91

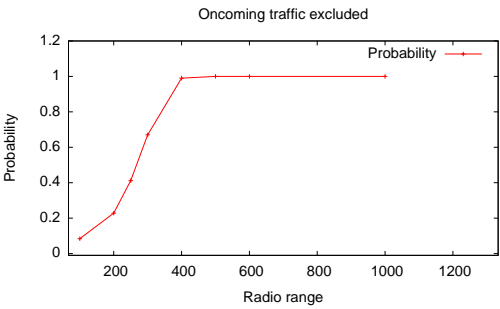


Avg. comm. partners: 240.95
Avg. active nodes: 483.91

B.10.7. Probability of being able to communicate with an arbitrary node



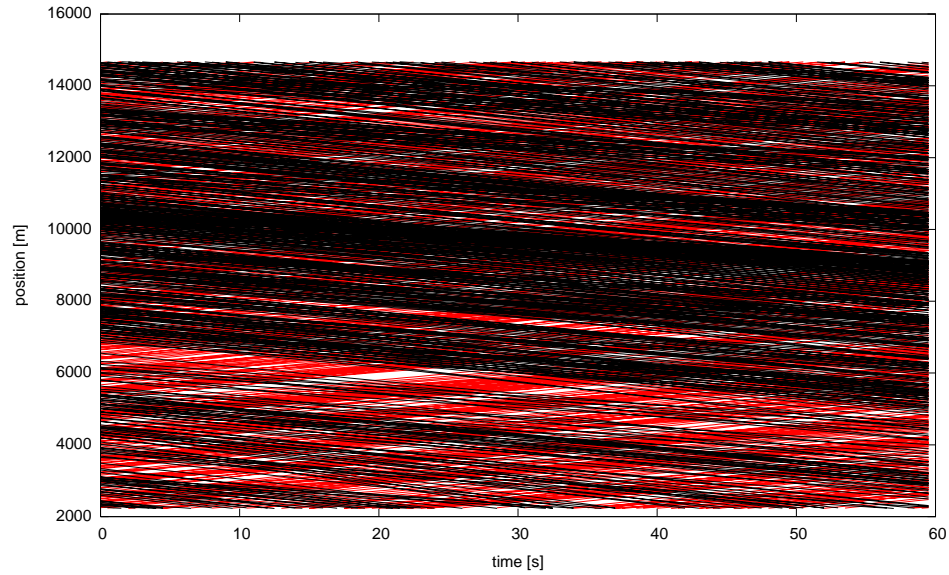
100.0 m:	0.19
200.0 m:	0.86
250.0 m:	0.95
300.0 m:	1.00
400.0 m:	1.00
500.0 m:	1.00
600.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.08
200.0 m:	0.23
250.0 m:	0.41
300.0 m:	0.67
400.0 m:	0.99
500.0 m:	1.00
600.0 m:	1.00
1000.0 m:	1.00

B.11. Scenario “mvmnt-hwgui-03lpd-11-11npkm-01.txt”

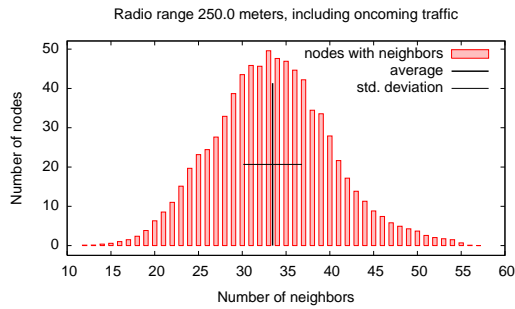
B.11.1. Trajectory plot



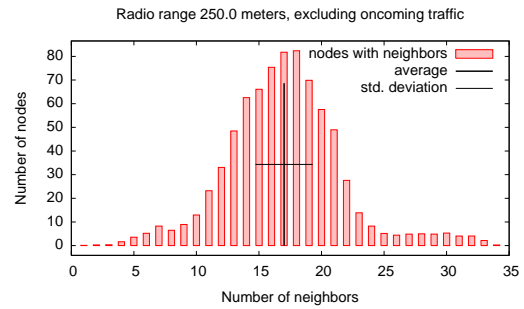
B.11.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	33.85
Number of nodes	933
Number of nodes (up)	467
Number of nodes (down)	466
Average node density [N/km]	65.49
Nodes per km and lane (up) [$N/(km \cdot lane)$]	11
Nodes per km and lane (down) [$N/(km \cdot lane)$]	11
Average number of active nodes	815.14
Average number of active nodes (up)	410.64
Average number of active nodes (down)	404.50
Number of lanes (up)	3
Length of valid area [m]	12446.50
Valid area start [m]	2225.10
Valid area end [m]	14671.60
Maximum CTR (both dirs) [m]	213.61

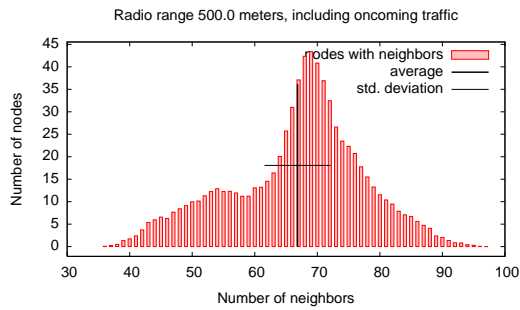
B.11.3. Neighbor histogram



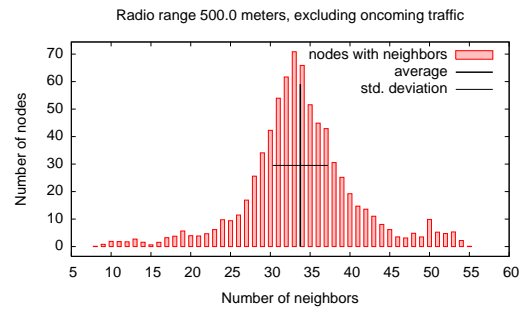
Average:	33.46
Variance:	44.80
Standard deviation:	6.69



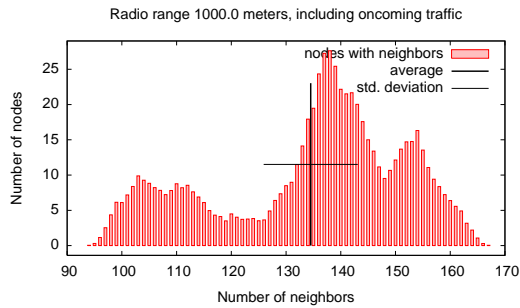
Average:	17.01
Variance:	20.91
Standard deviation:	4.57



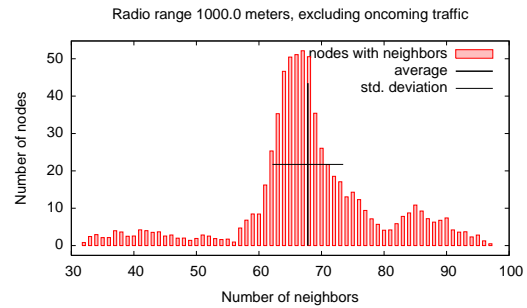
Average:	66.84
Variance:	111.50
Standard deviation:	10.56



Average:	33.77
Variance:	48.03
Standard deviation:	6.93



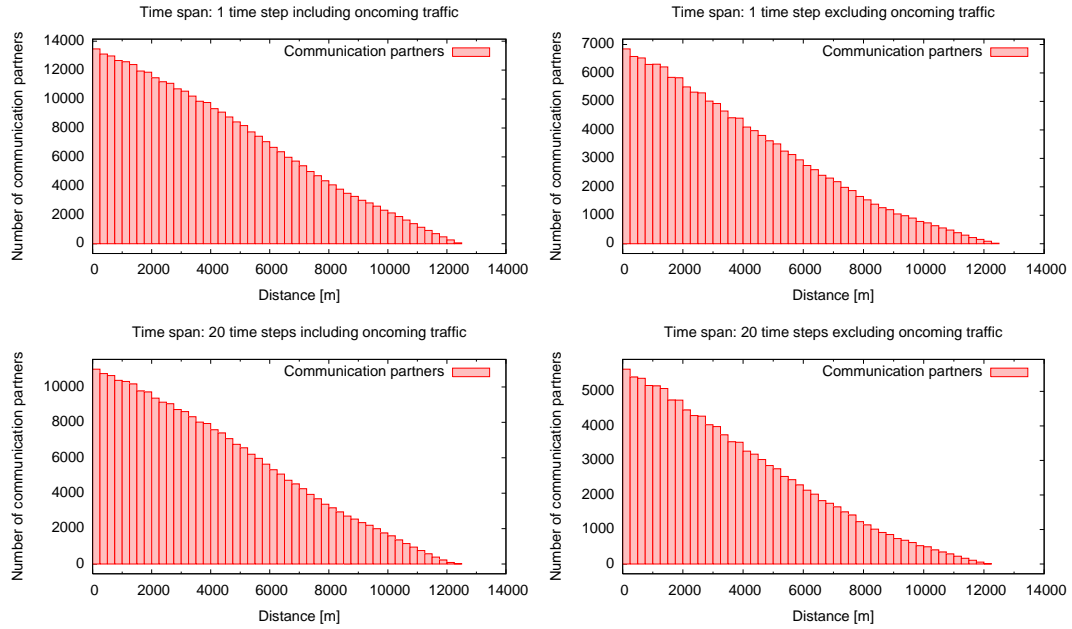
Average:	134.51
Variance:	295.39
Standard deviation:	17.19



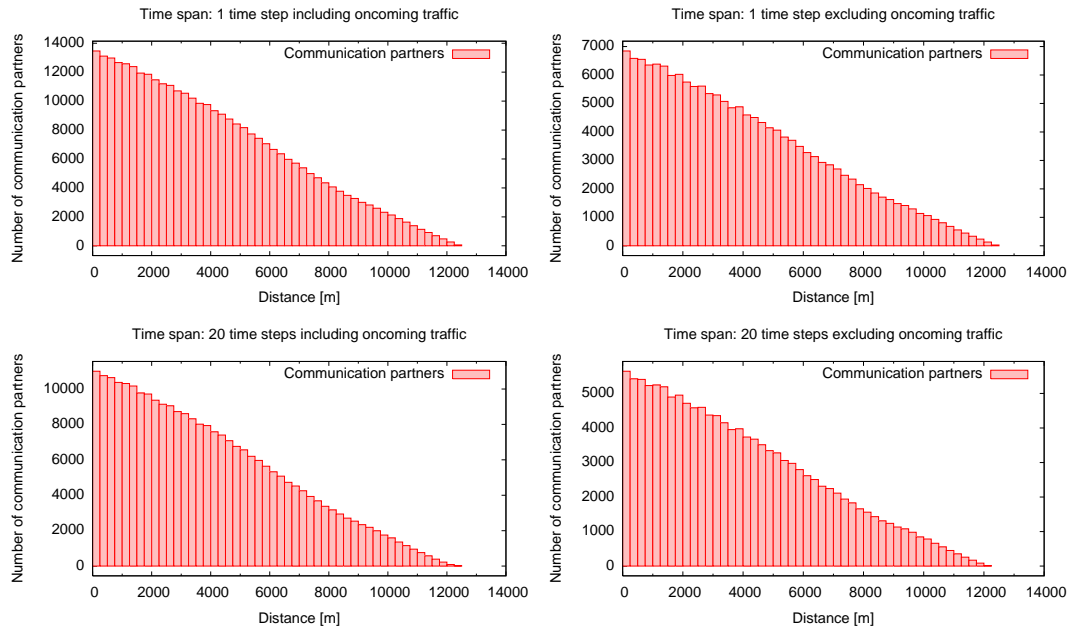
Average:	67.81
Variance:	127.91
Standard deviation:	11.31

B.11.4. Communication partner histogram

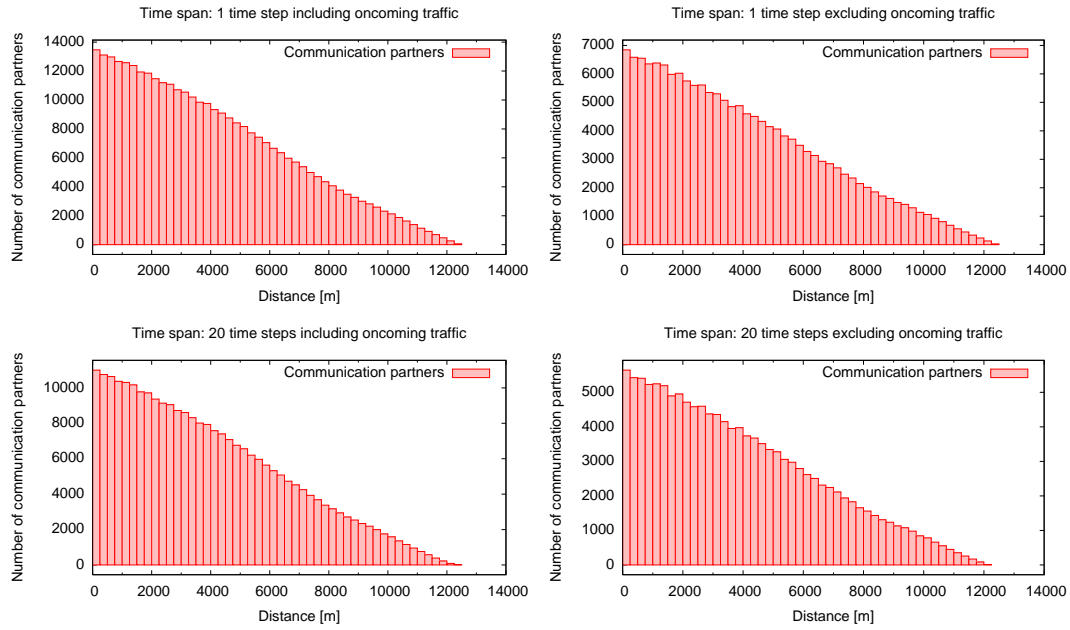
Radio range: 250.0 meters, bin size: 250.0 meters



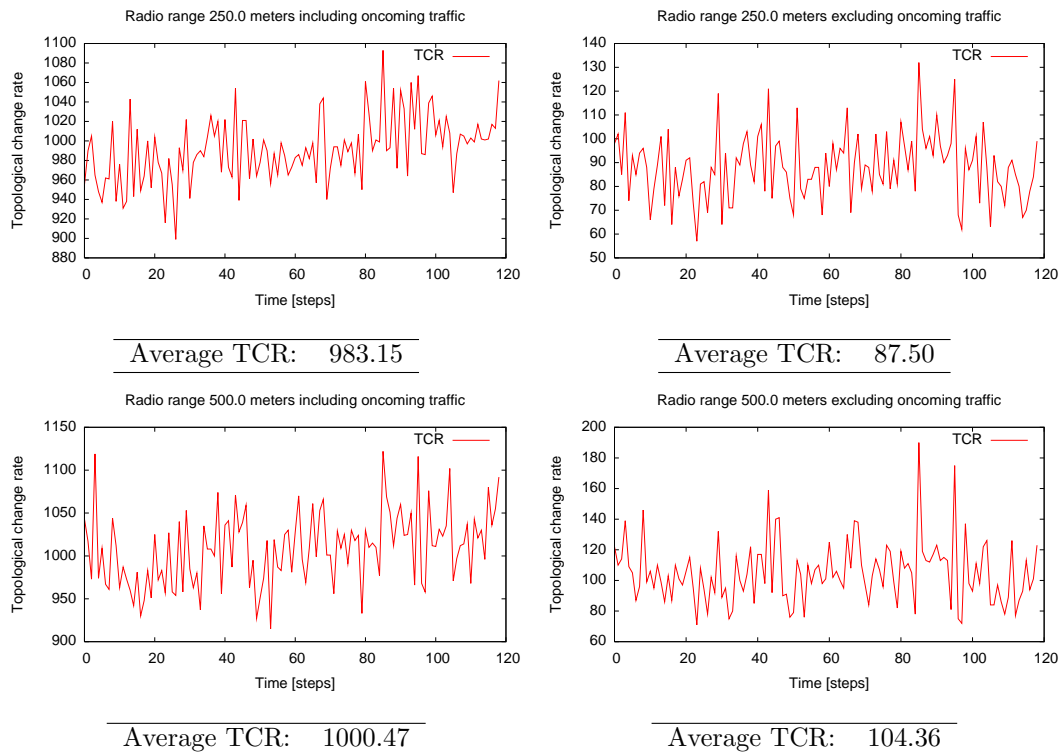
Radio range: 500.0 meters, bin size: 250.0 meters

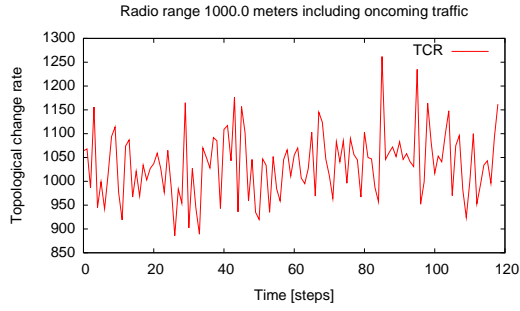


Radio range: 1000.0 meters, bin size: 250.0 meters

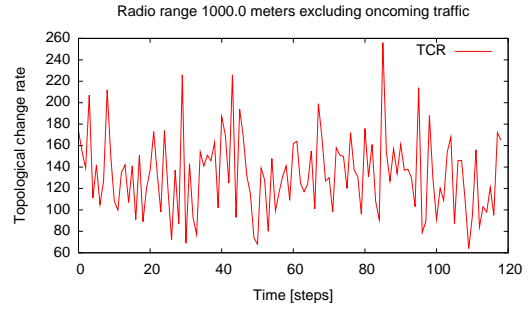


B.11.5. Topological Change Rate (TCR)



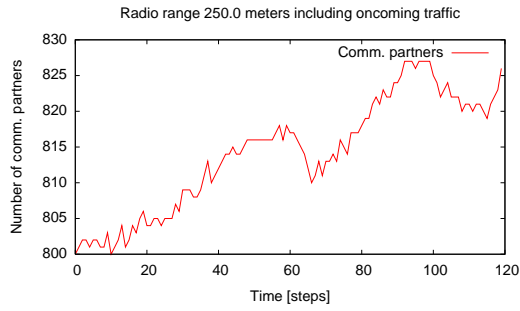


Average TCR: 1027.07

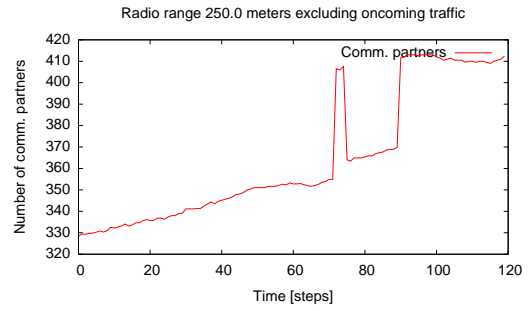


Average TCR: 132.28

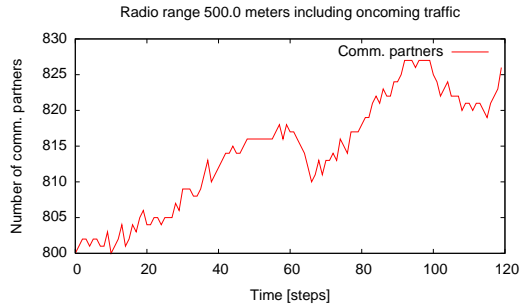
B.11.6. Total number of communication partners



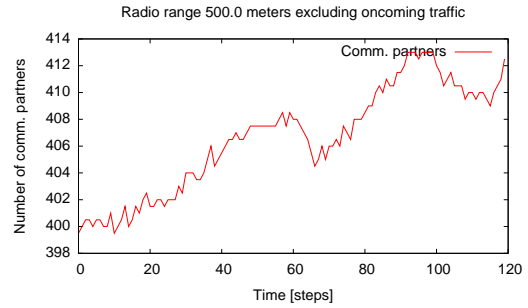
Avg. comm. partners: 814.14
Avg. active nodes: 815.14



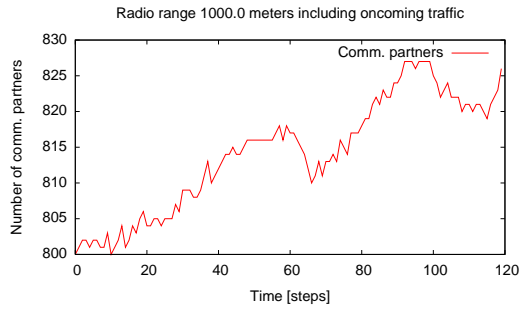
Avg. comm. partners: 364.40
Avg. active nodes: 815.14



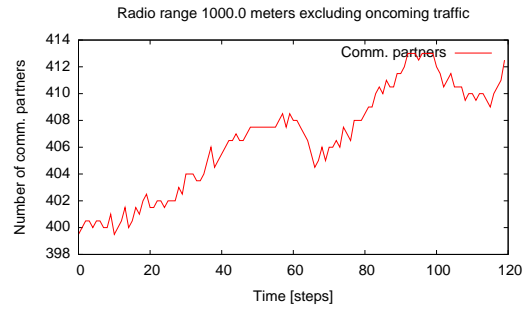
Avg. comm. partners: 814.14
Avg. active nodes: 815.14



Avg. comm. partners: 406.57
Avg. active nodes: 815.14

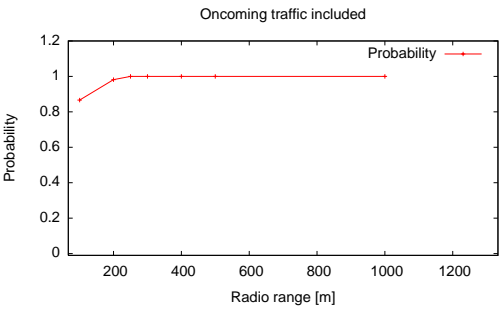


Avg. comm. partners: 814.14
Avg. active nodes: 815.14

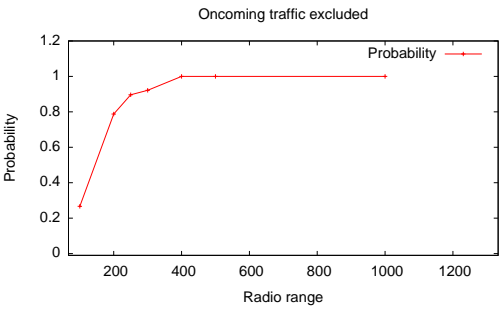


Avg. comm. partners: 406.57
Avg. active nodes: 815.14

B.11.7. Probability of being able to communicate with an arbitrary node



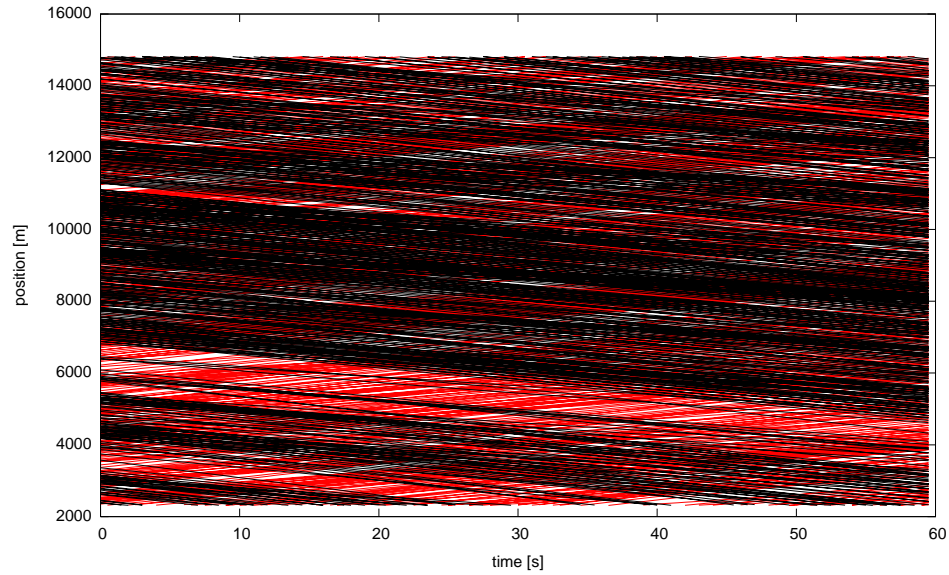
100.0 m:	0.87
200.0 m:	0.98
250.0 m:	1.00
300.0 m:	1.00
400.0 m:	1.00
500.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.27
200.0 m:	0.79
250.0 m:	0.90
300.0 m:	0.92
400.0 m:	1.00
500.0 m:	1.00
1000.0 m:	1.00

B.12. Scenario “mvmnt-hwgui-03lpd-11-11npkm-02.txt”

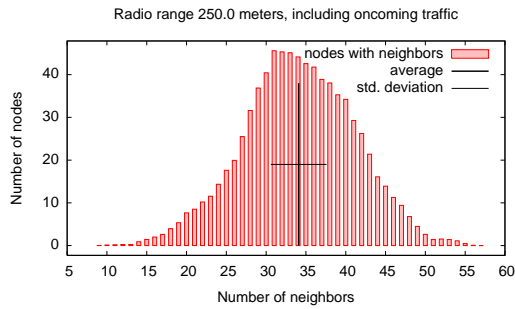
B.12.1. Trajectory plot



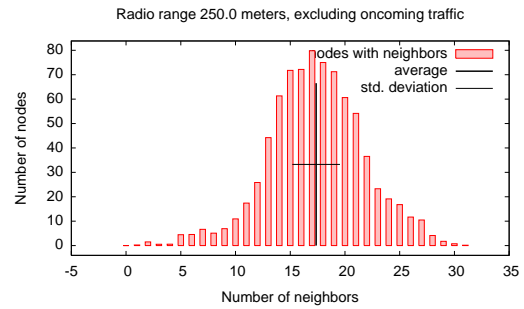
B.12.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	34.00
Number of nodes	941
Number of nodes (up)	472
Number of nodes (down)	469
Average node density [N/km]	66.16
Nodes per km and lane (up) [$N/(km \cdot lane)$]	11
Nodes per km and lane (down) [$N/(km \cdot lane)$]	11
Average number of active nodes	827.48
Average number of active nodes (up)	415.12
Average number of active nodes (down)	412.37
Number of lanes (up)	3
Length of valid area [m]	12506.70
Valid area start [m]	2312.80
Valid area end [m]	14819.50
Maximum CTR (both dirs) [m]	158.58

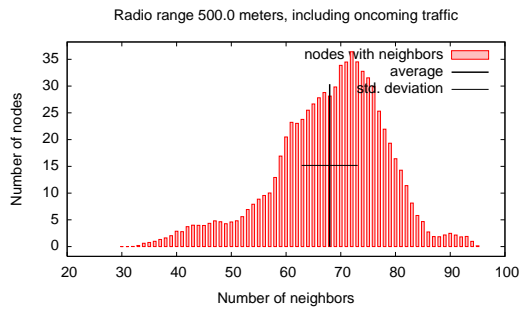
B.12.3. Neighbor histogram



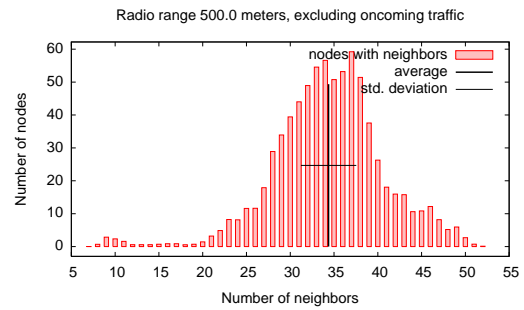
Average:	34.09
Variance:	49.07
Standard deviation:	7.00



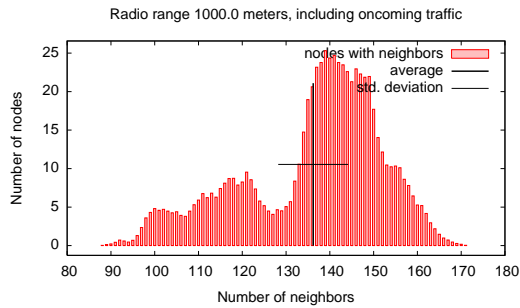
Average:	17.37
Variance:	18.89
Standard deviation:	4.35



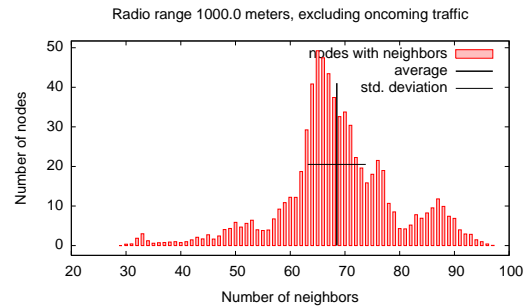
Average:	67.97
Variance:	105.00
Standard deviation:	10.25



Average:	34.38
Variance:	40.00
Standard deviation:	6.32



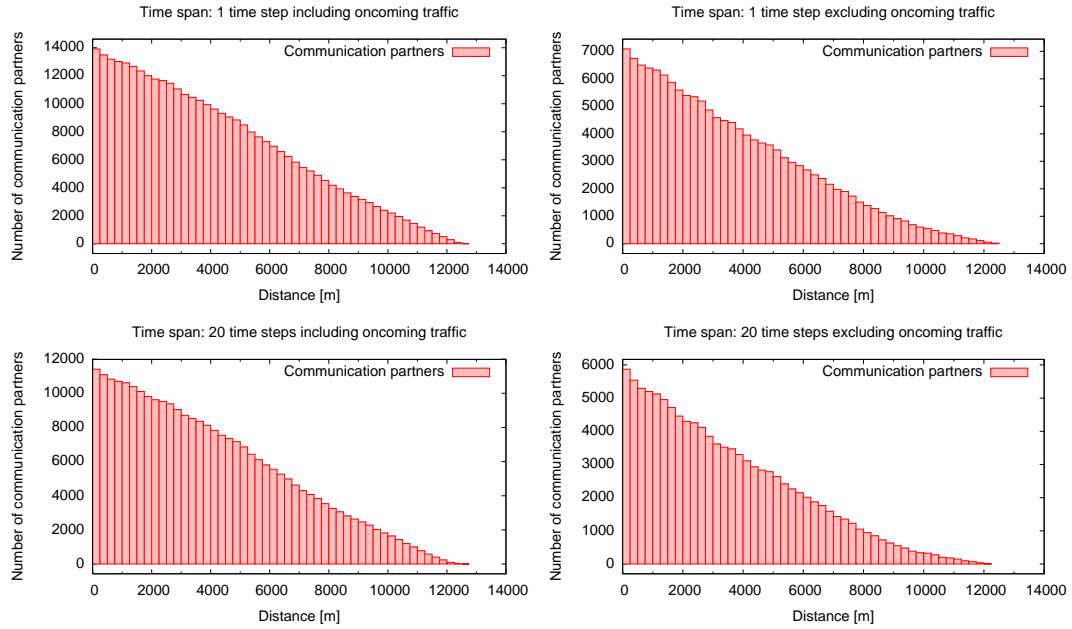
Average:	136.20
Variance:	255.09
Standard deviation:	15.97



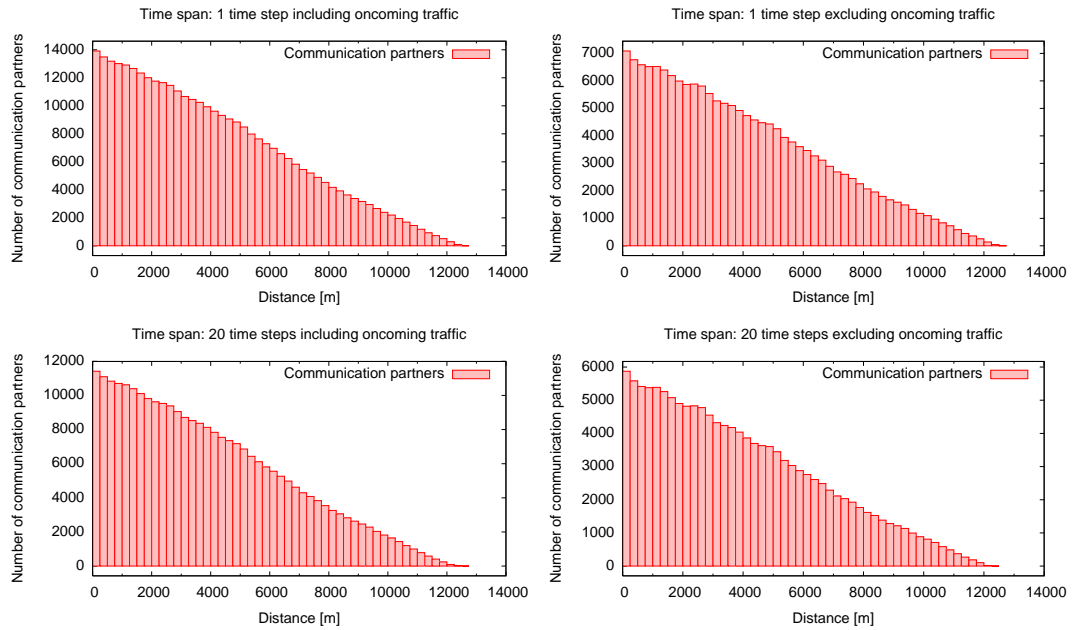
Average:	68.51
Variance:	112.22
Standard deviation:	10.59

B.12.4. Communication partner histogram

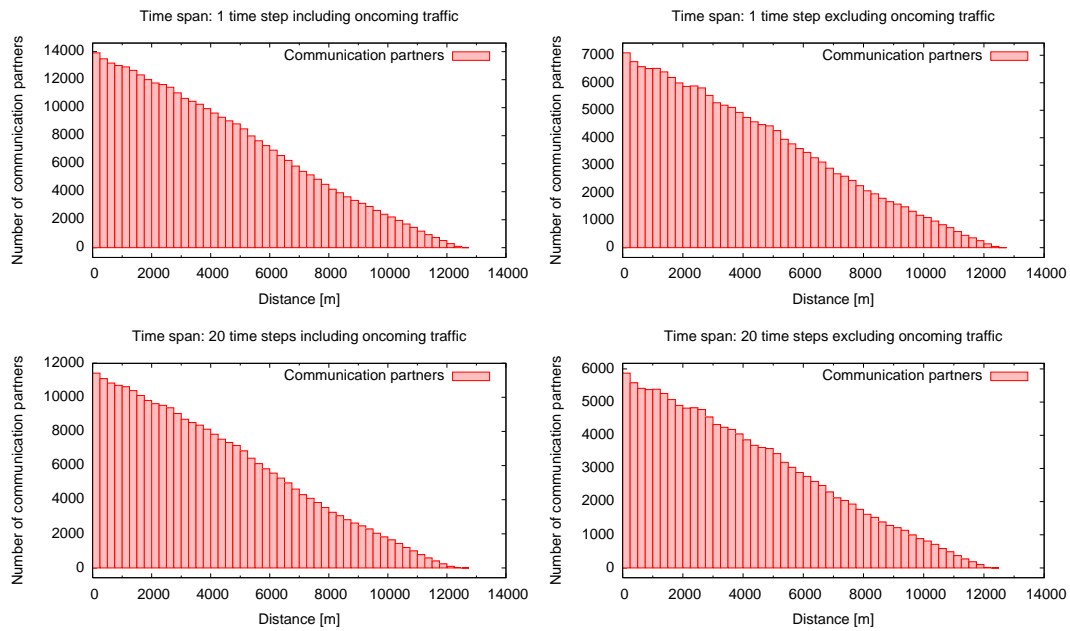
Radio range: 250.0 meters, bin size: 250.0 meters



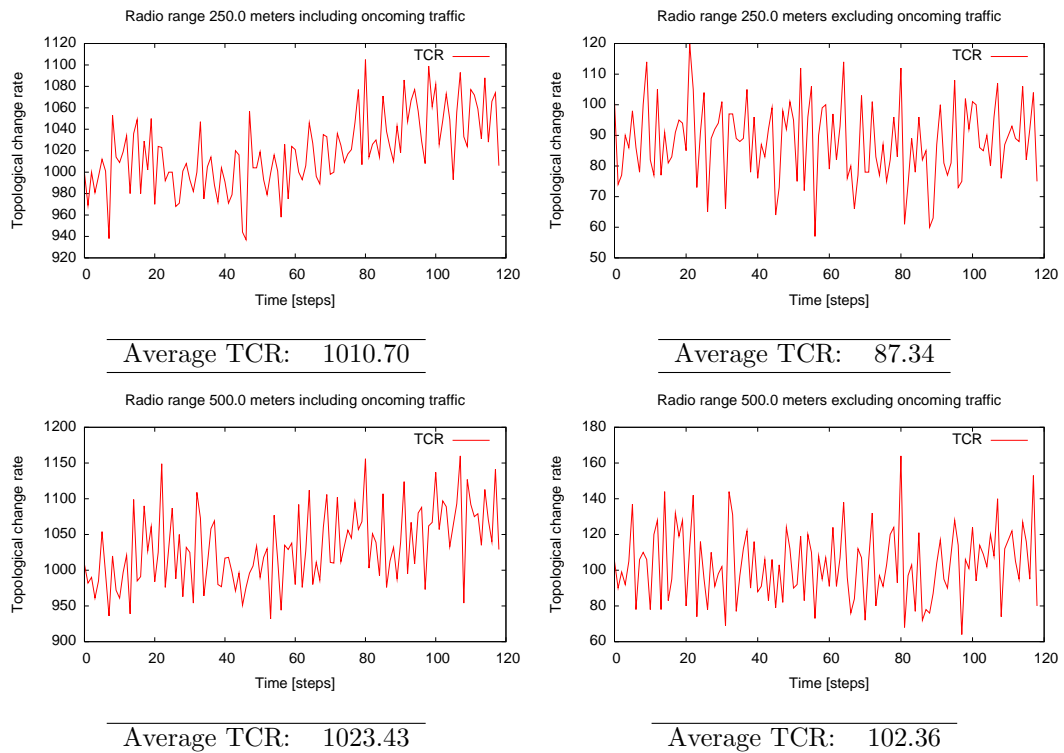
Radio range: 500.0 meters, bin size: 250.0 meters

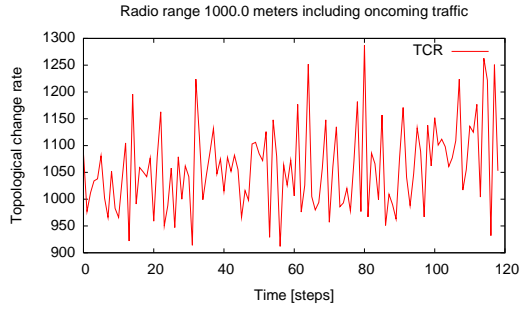


Radio range: 1000.0 meters, bin size: 250.0 meters

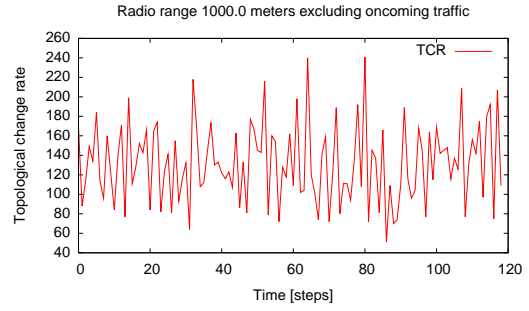


B.12.5. Topological Change Rate (TCR)



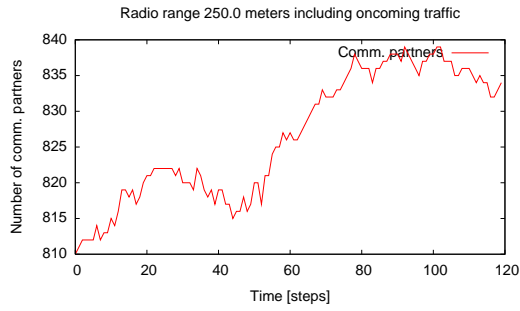


Average TCR: 1049.72

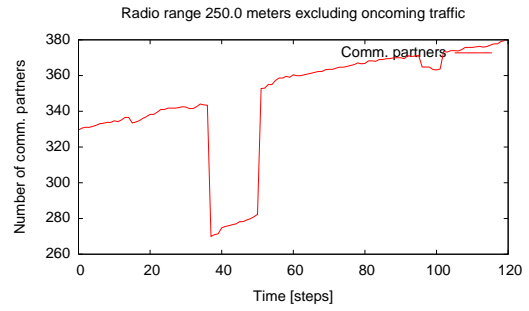


Average TCR: 130.60

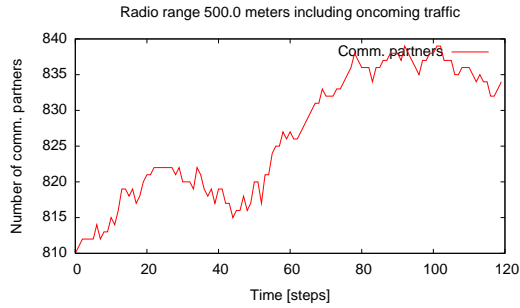
B.12.6. Total number of communication partners



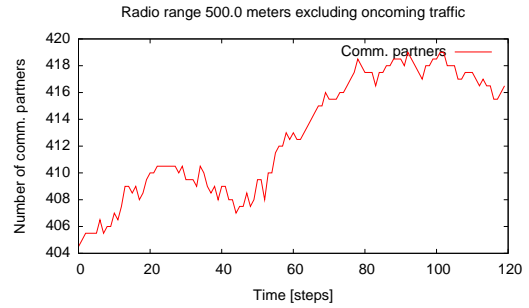
Avg. comm. partners: 826.48
Avg. active nodes: 827.48



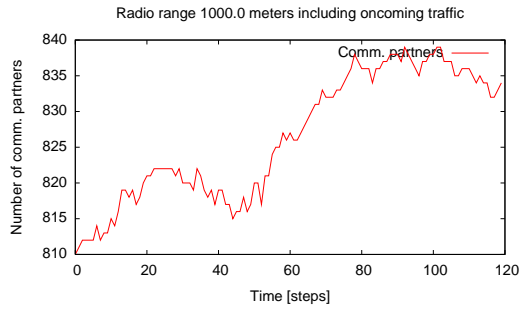
Avg. comm. partners: 347.37
Avg. active nodes: 827.48



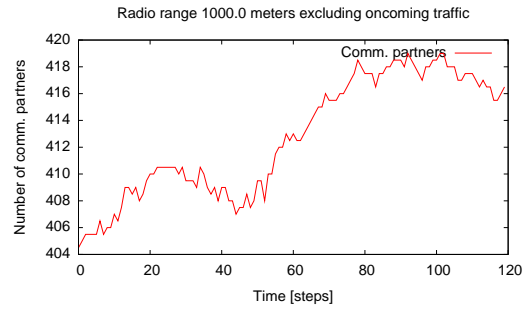
Avg. comm. partners: 826.48
Avg. active nodes: 827.48



Avg. comm. partners: 412.74
Avg. active nodes: 827.48

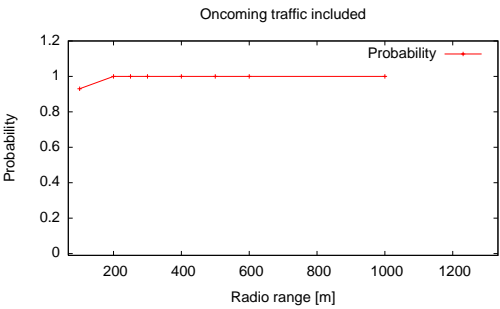


Avg. comm. partners: 826.48
Avg. active nodes: 827.48

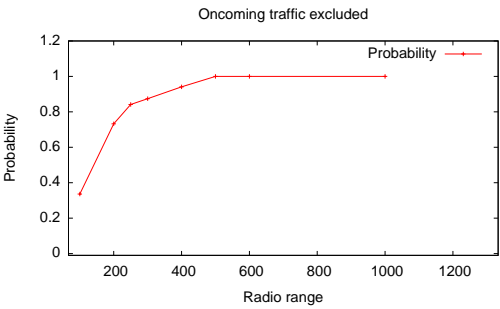


Avg. comm. partners: 412.74
Avg. active nodes: 827.48

B.12.7. Probability of being able to communicate with an arbitrary node



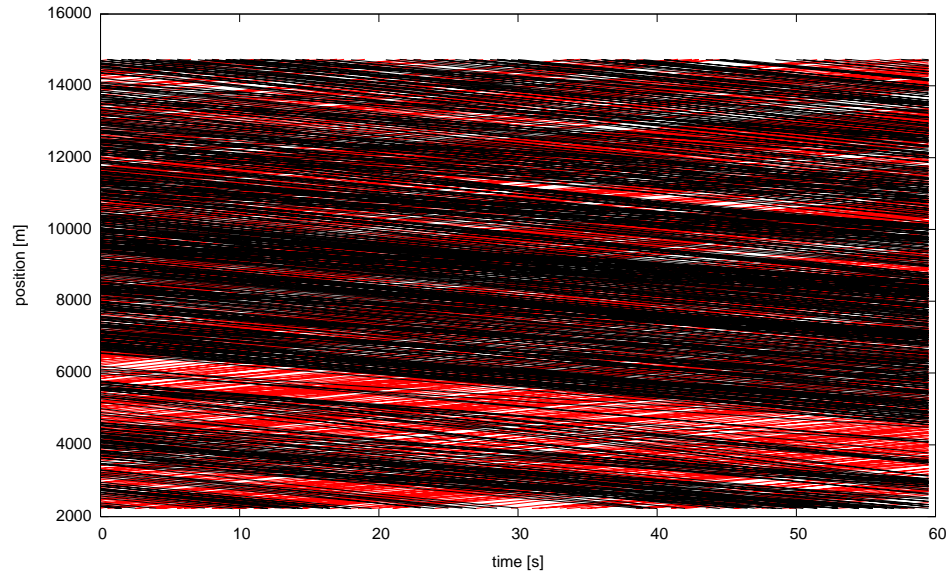
100.0 m:	0.93
200.0 m:	1.00
250.0 m:	1.00
300.0 m:	1.00
400.0 m:	1.00
500.0 m:	1.00
600.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.34
200.0 m:	0.73
250.0 m:	0.84
300.0 m:	0.87
400.0 m:	0.94
500.0 m:	1.00
600.0 m:	1.00
1000.0 m:	1.00

B.13. Scenario “mvmnt-hwgui-03lpd-11-11npkm-03.txt”

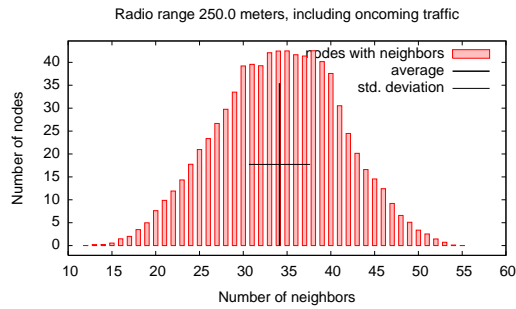
B.13.1. Trajectory plot



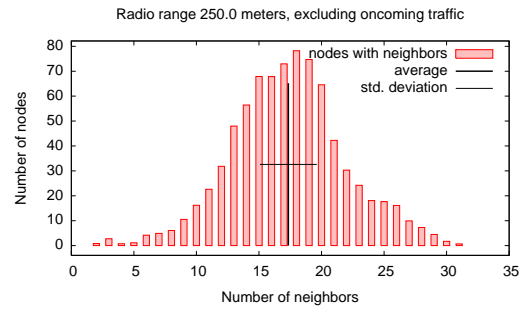
B.13.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	34.23
Number of nodes	935
Number of nodes (up)	467
Number of nodes (down)	468
Average node density [N/km]	66.52
Nodes per km and lane (up) [$N/(km \cdot lane)$]	11
Nodes per km and lane (down) [$N/(km \cdot lane)$]	11
Average number of active nodes	832.82
Average number of active nodes (up)	418.58
Average number of active nodes (down)	414.23
Number of lanes (up)	3
Length of valid area [m]	12520.00
Valid area start [m]	2221.60
Valid area end [m]	14741.60
Maximum CTR (both dirs) [m]	132.02

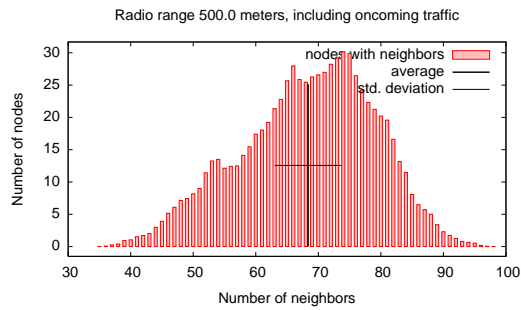
B.13.3. Neighbor histogram



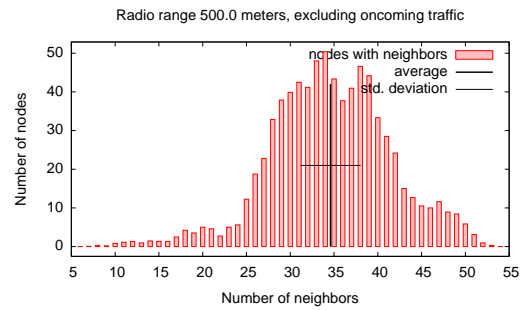
Average:	34.14
Variance:	48.88
Standard deviation:	6.99



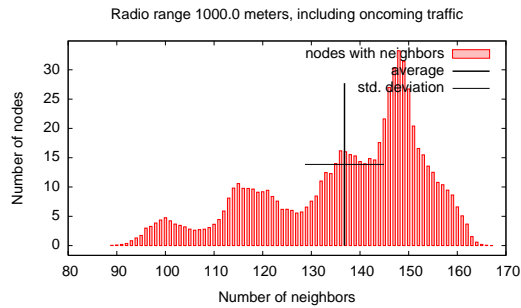
Average:	17.35
Variance:	20.65
Standard deviation:	4.54



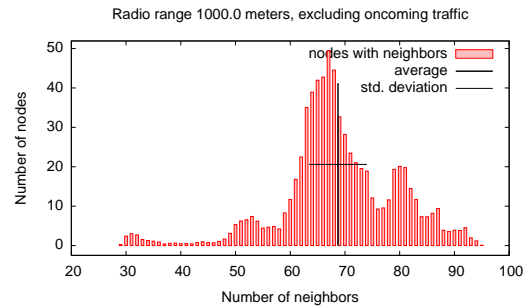
Average:	68.36
Variance:	113.98
Standard deviation:	10.68



Average:	34.59
Variance:	47.27
Standard deviation:	6.88



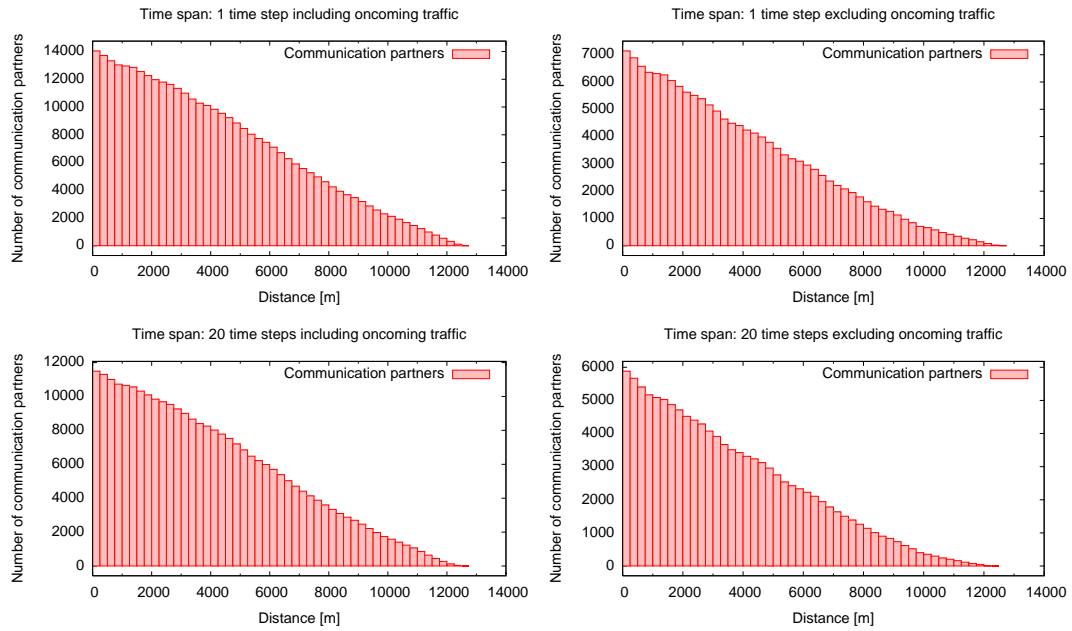
Average:	136.81
Variance:	264.55
Standard deviation:	16.26



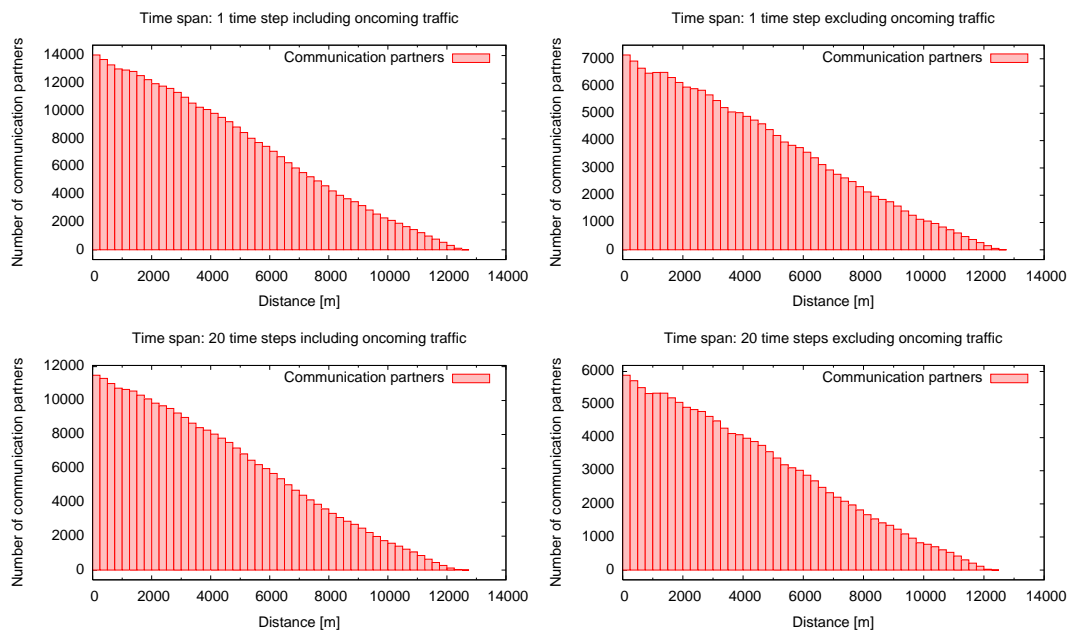
Average:	68.72
Variance:	111.68
Standard deviation:	10.57

B.13.4. Communication partner histogram

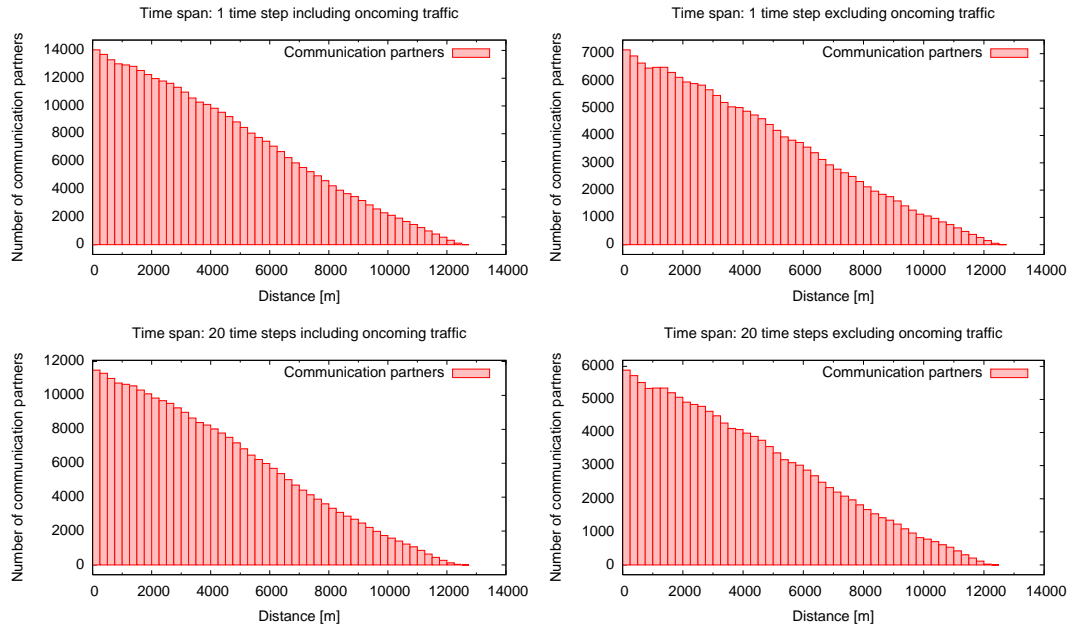
Radio range: 250.0 meters, bin size: 250.0 meters



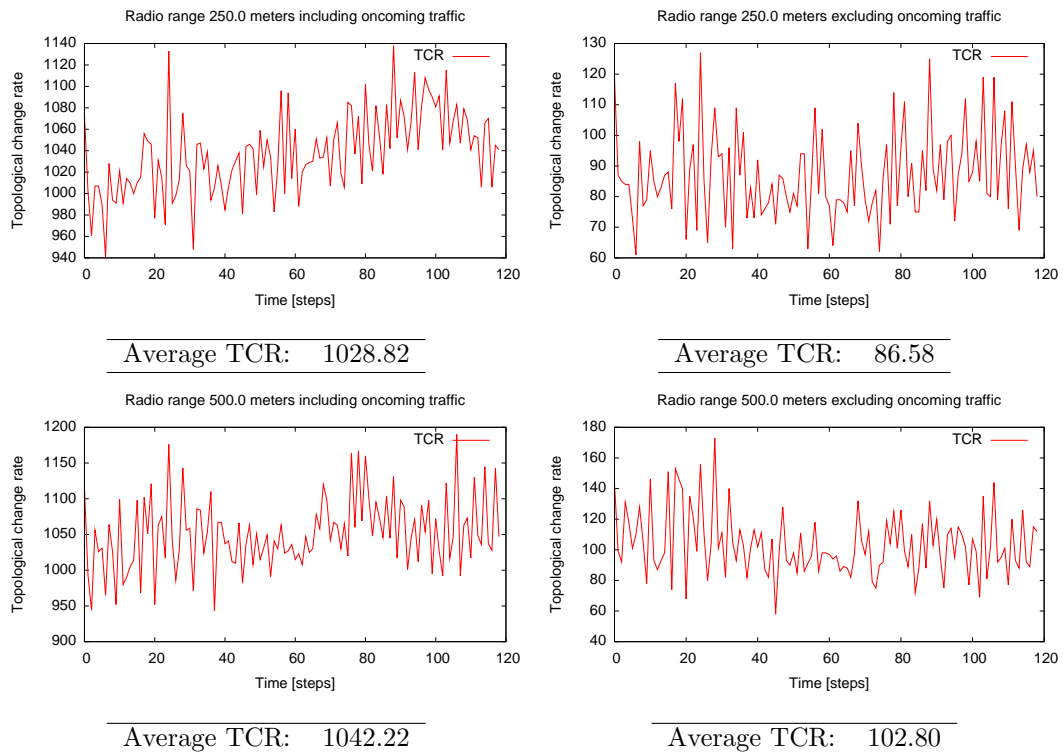
Radio range: 500.0 meters, bin size: 250.0 meters

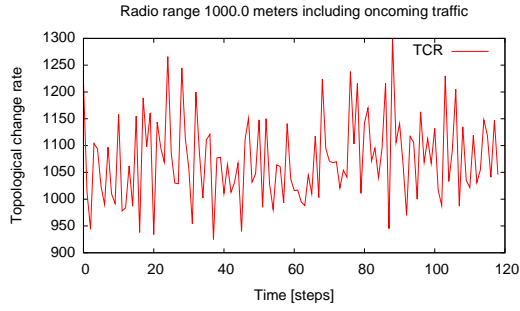


Radio range: 1000.0 meters, bin size: 250.0 meters

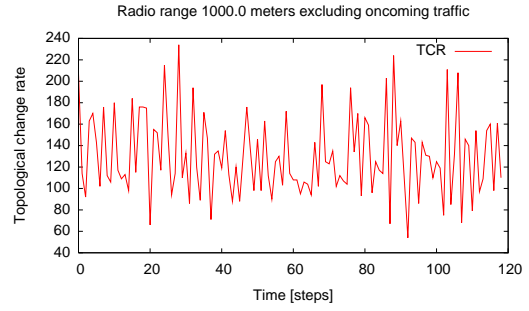


B.13.5. Topological Change Rate (TCR)



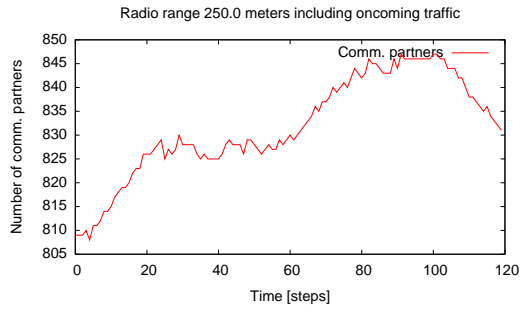


Average TCR: 1065.43

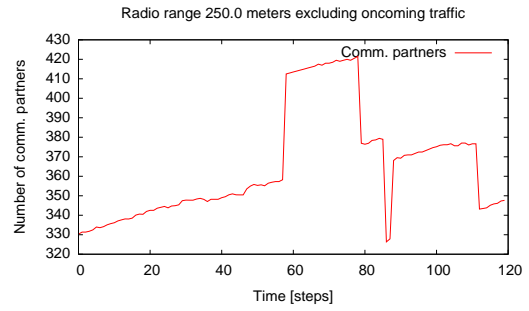


Average TCR: 129.18

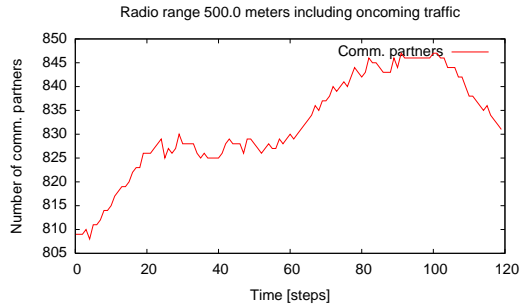
B.13.6. Total number of communication partners



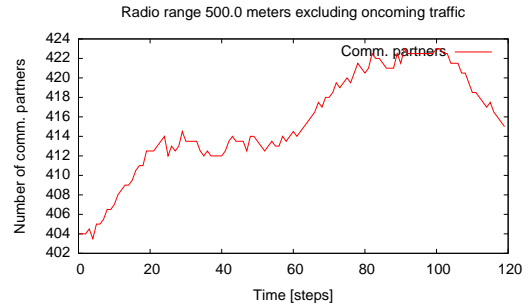
Avg. comm. partners: 831.82
Avg. active nodes: 832.82



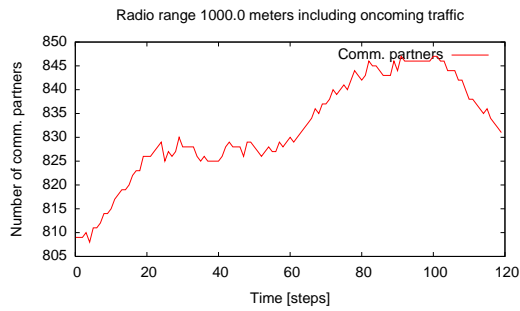
Avg. comm. partners: 365.03
Avg. active nodes: 832.82



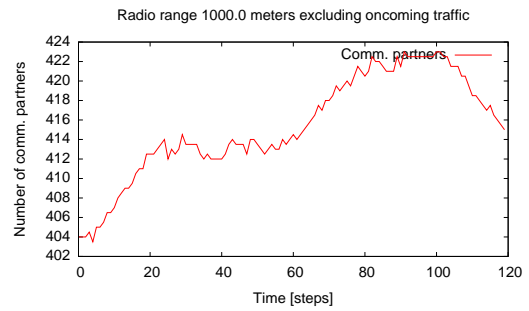
Avg. comm. partners: 831.82
Avg. active nodes: 832.82



Avg. comm. partners: 415.41
Avg. active nodes: 832.82

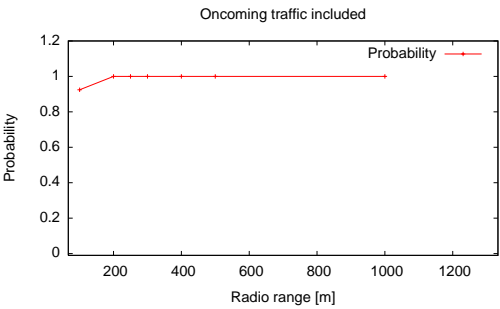


Avg. comm. partners: 831.82
Avg. active nodes: 832.82

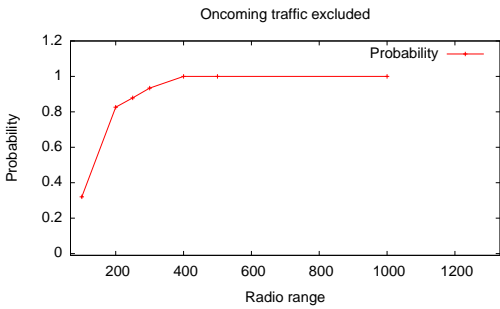


Avg. comm. partners: 415.41
Avg. active nodes: 832.82

B.13.7. Probability of being able to communicate with an arbitrary node



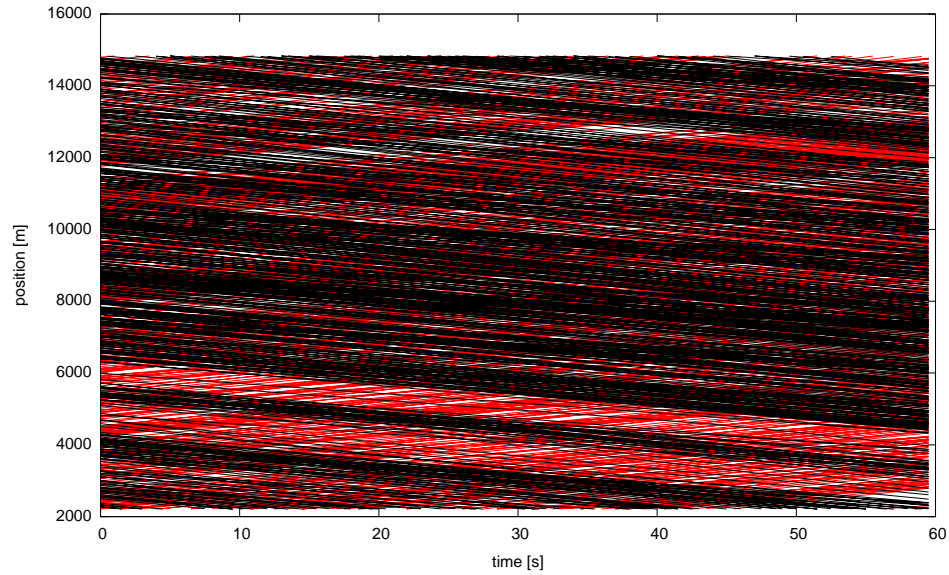
100.0 m:	0.92
200.0 m:	1.00
250.0 m:	1.00
300.0 m:	1.00
400.0 m:	1.00
500.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.32
200.0 m:	0.83
250.0 m:	0.88
300.0 m:	0.93
400.0 m:	1.00
500.0 m:	1.00
1000.0 m:	1.00

B.14. Scenario “mvmnt-hwgui-03lpd-11-11npkm-04.txt”

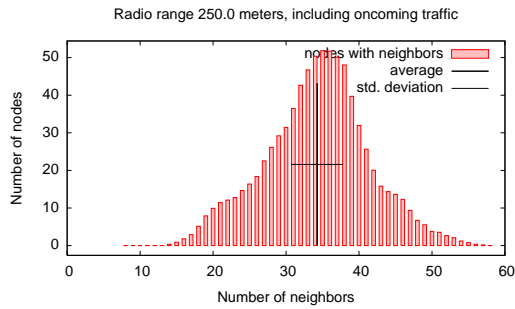
B.14.1. Trajectory plot



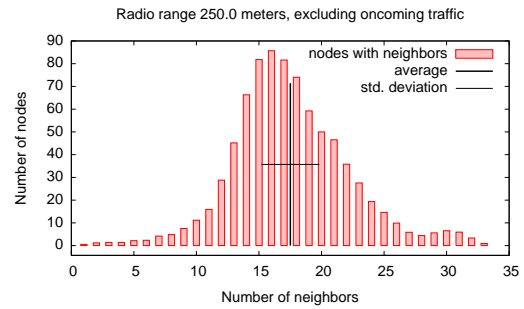
B.14.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	34.28
Number of nodes	944
Number of nodes (up)	467
Number of nodes (down)	477
Average node density [N/km]	66.57
Nodes per km and lane (up) [$N/(km \cdot lane)$]	11
Nodes per km and lane (down) [$N/(km \cdot lane)$]	11
Average number of active nodes	840.55
Average number of active nodes (up)	419.92
Average number of active nodes (down)	420.63
Number of lanes (up)	3
Length of valid area [m]	12627.30
Valid area start [m]	2207.90
Valid area end [m]	14835.20
Maximum CTR (both dirs) [m]	125.82

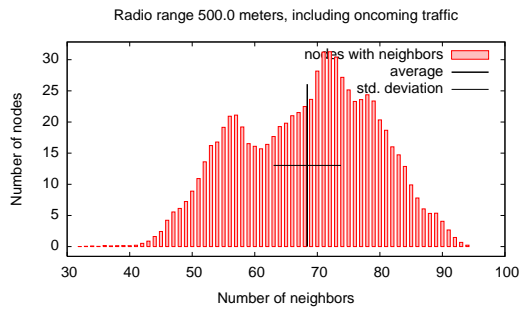
B.14.3. Neighbor histogram



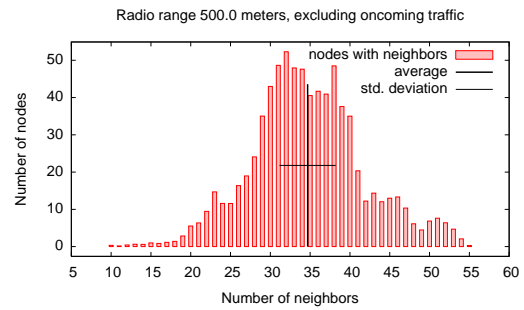
Average:	34.27
Variance:	50.69
Standard deviation:	7.12



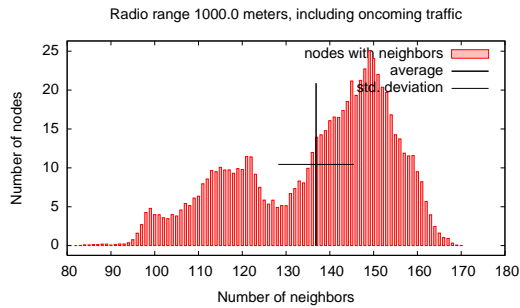
Average:	17.51
Variance:	21.48
Standard deviation:	4.63



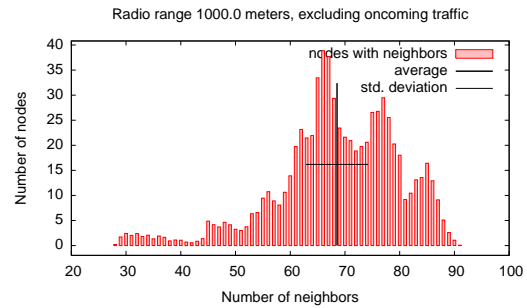
Average:	68.39
Variance:	116.33
Standard deviation:	10.79



Average:	34.68
Variance:	49.87
Standard deviation:	7.06



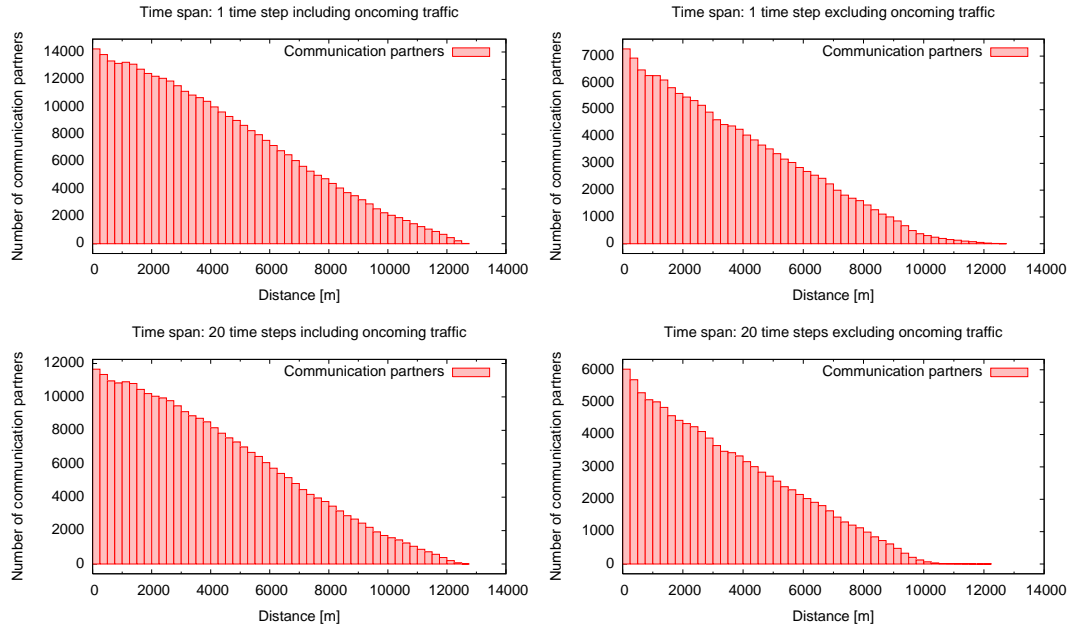
Average:	136.87
Variance:	298.31
Standard deviation:	17.27



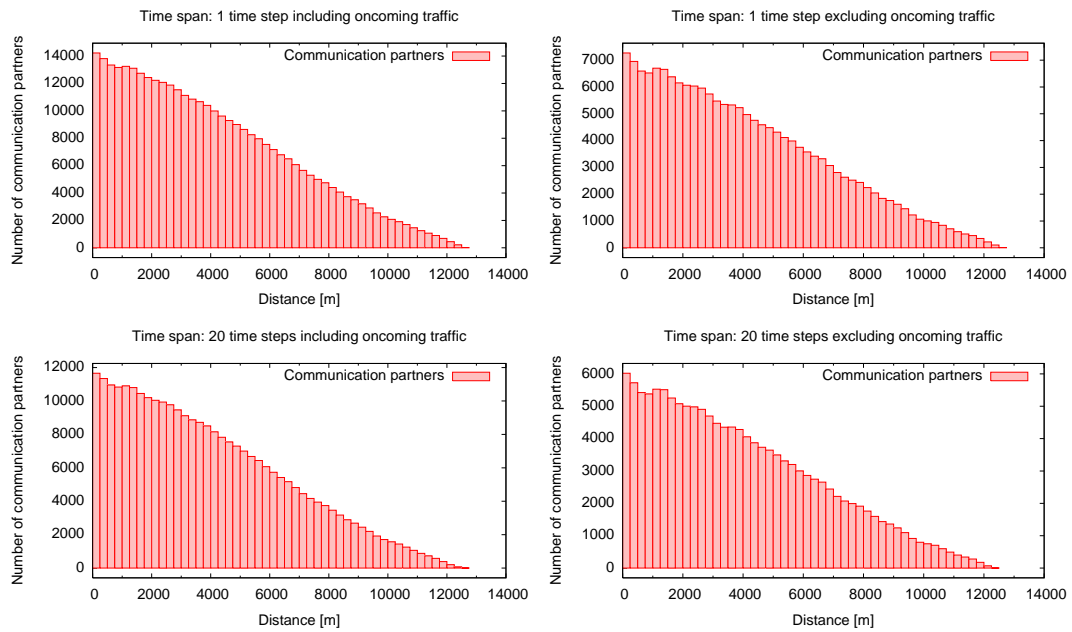
Average:	68.55
Variance:	128.42
Standard deviation:	11.33

B.14.4. Communication partner histogram

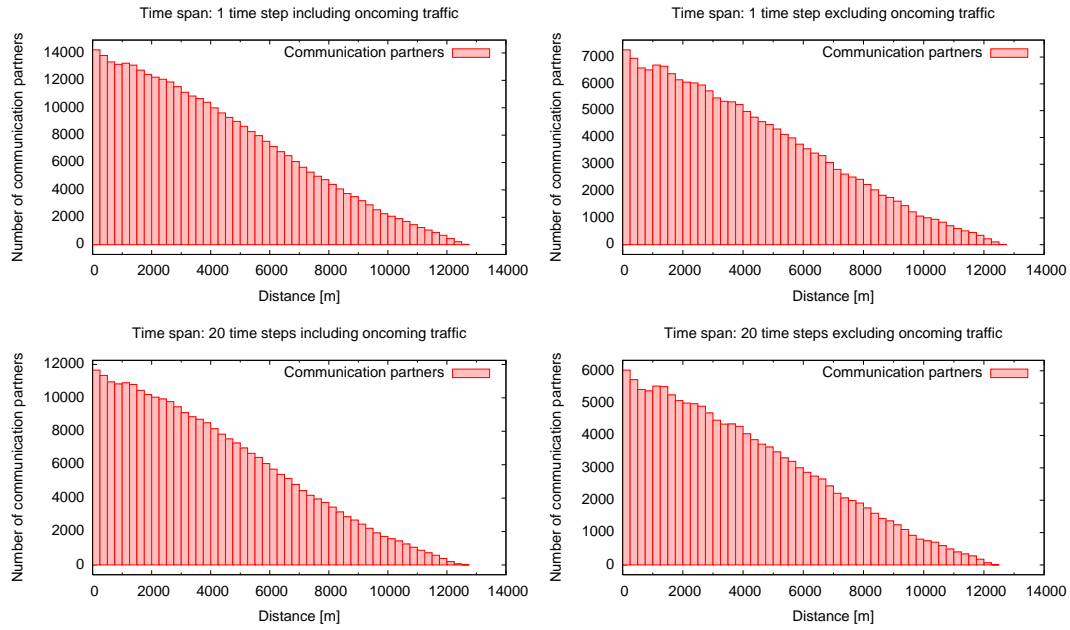
Radio range: 250.0 meters, bin size: 250.0 meters



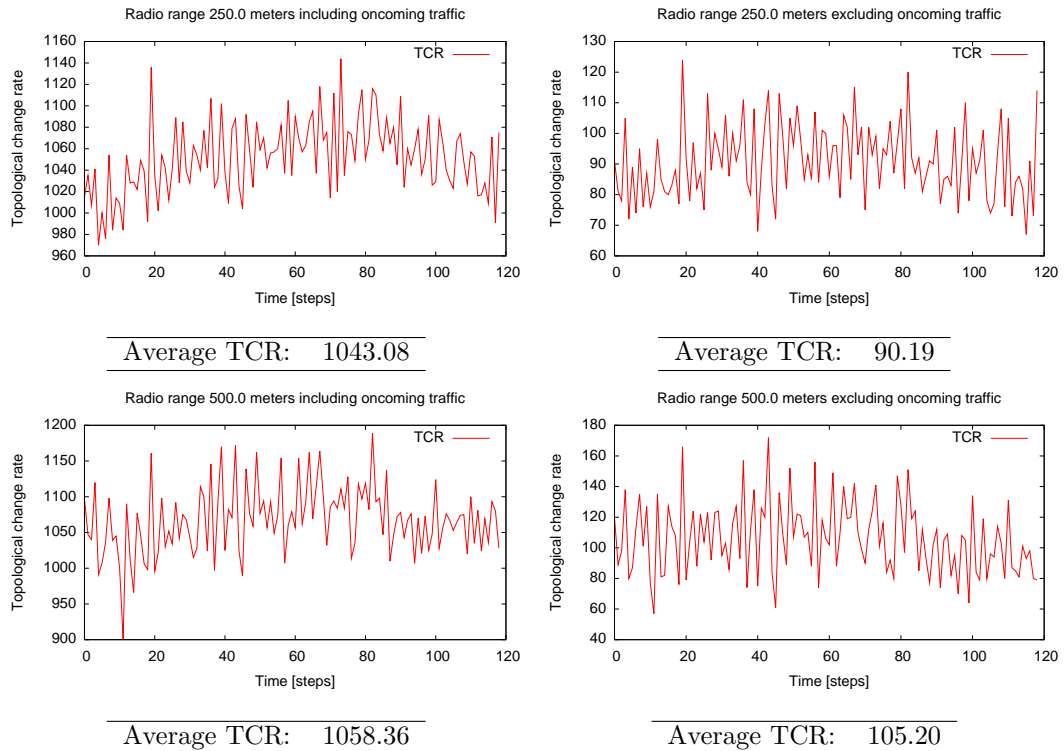
Radio range: 500.0 meters, bin size: 250.0 meters

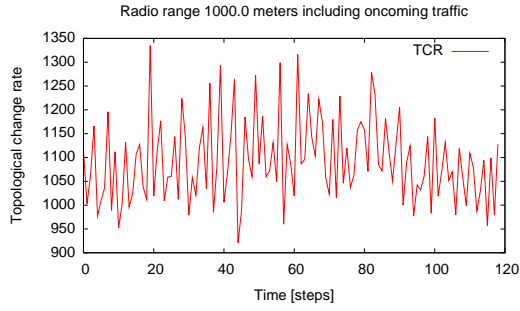


Radio range: 1000.0 meters, bin size: 250.0 meters

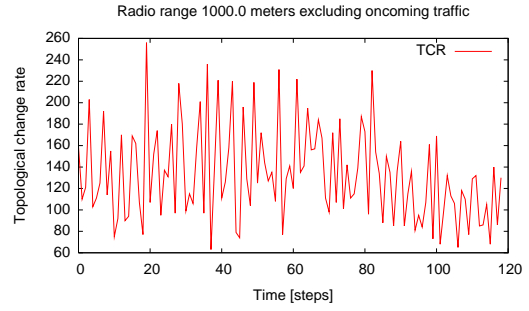


B.14.5. Topological Change Rate (TCR)



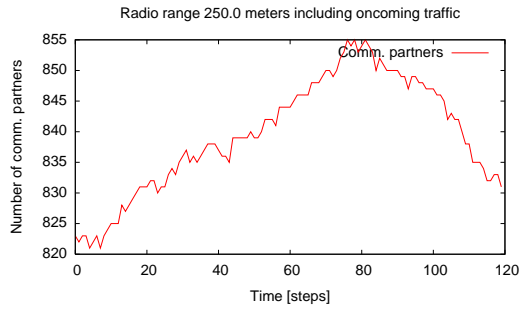


Average TCR: 1084.08

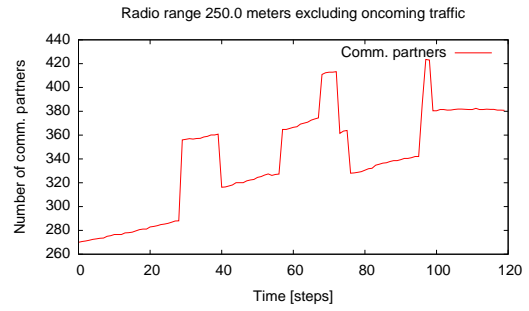


Average TCR: 132.03

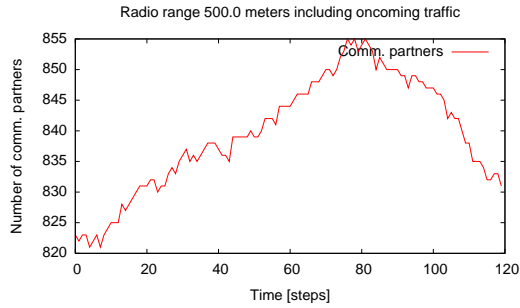
B.14.6. Total number of communication partners



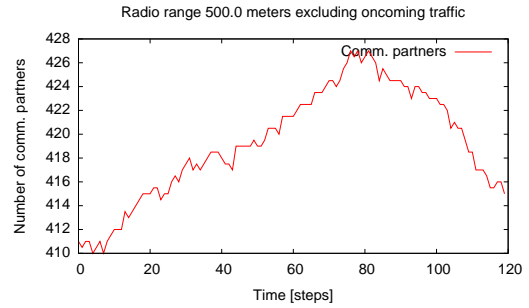
Avg. comm. partners: 839.55
Avg. active nodes: 840.55



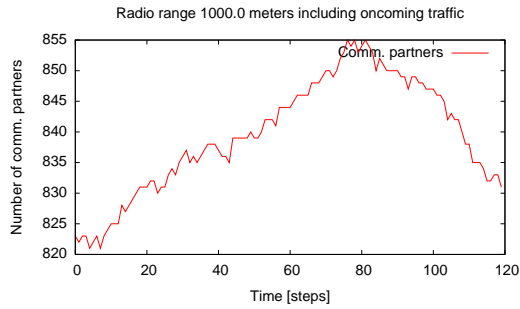
Avg. comm. partners: 338.87
Avg. active nodes: 840.55



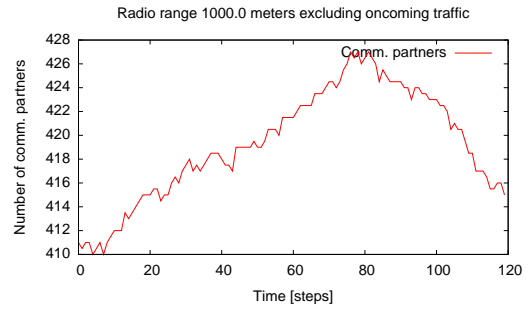
Avg. comm. partners: 839.55
Avg. active nodes: 840.55



Avg. comm. partners: 419.27
Avg. active nodes: 840.55

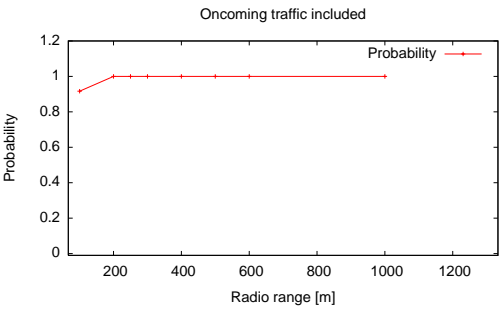


Avg. comm. partners: 839.55
Avg. active nodes: 840.55

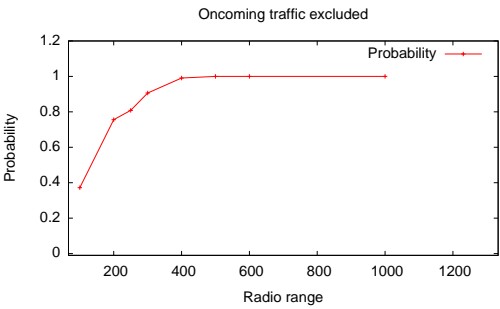


Avg. comm. partners: 419.27
Avg. active nodes: 840.55

B.14.7. Probability of being able to communicate with an arbitrary node



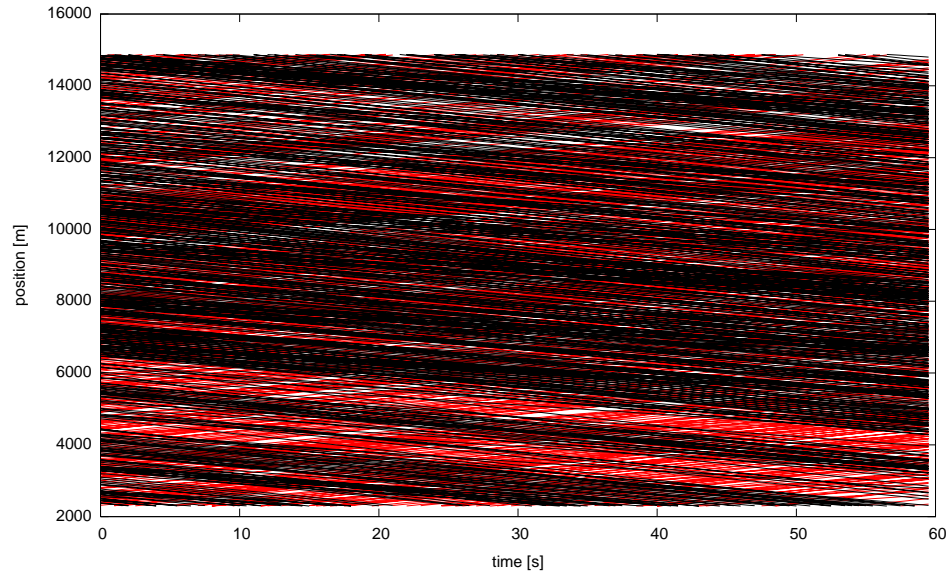
100.0 m:	0.92
200.0 m:	1.00
250.0 m:	1.00
300.0 m:	1.00
400.0 m:	1.00
500.0 m:	1.00
600.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.37
200.0 m:	0.76
250.0 m:	0.81
300.0 m:	0.91
400.0 m:	0.99
500.0 m:	1.00
600.0 m:	1.00
1000.0 m:	1.00

B.15. Scenario “mvmnt-hwgui-03lpd-11-11npkm-05.txt”

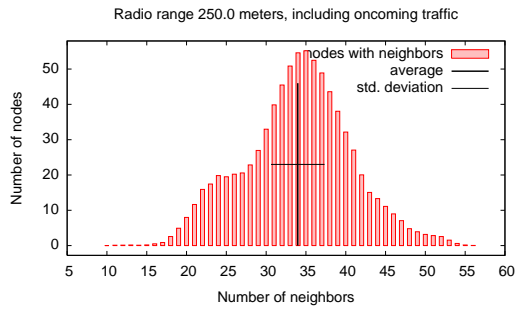
B.15.1. Trajectory plot



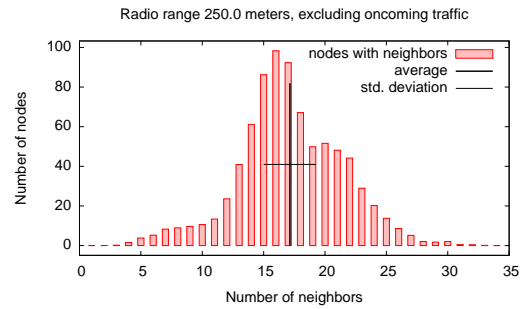
B.15.2. Single value statistics

Parameter	Value
Directionality	<i>bidirectional</i>
Number of time steps	120
Average speed of all nodes [m/s]	34.42
Number of nodes	951
Number of nodes (up)	473
Number of nodes (down)	478
Average node density [N/km]	66.56
Nodes per km and lane (up) [$N/(km \cdot lane)$]	11
Nodes per km and lane (down) [$N/(km \cdot lane)$]	11
Average number of active nodes	837.74
Average number of active nodes (up)	417.32
Average number of active nodes (down)	420.42
Number of lanes (up)	3
Length of valid area [m]	12585.80
Valid area start [m]	2291.60
Valid area end [m]	14877.40
Maximum CTR (both dirs) [m]	148.92

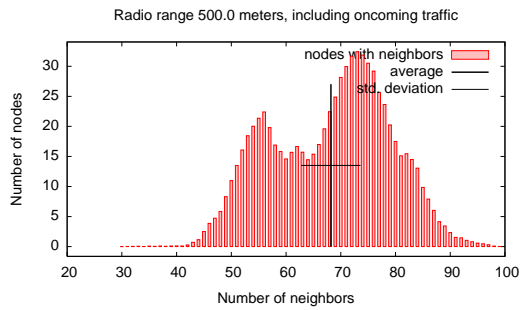
B.15.3. Neighbor histogram



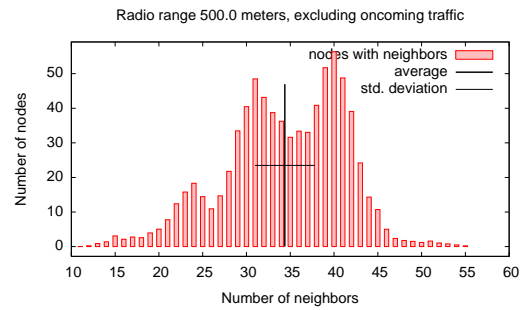
Average:	33.97
Variance:	45.28
Standard deviation:	6.73



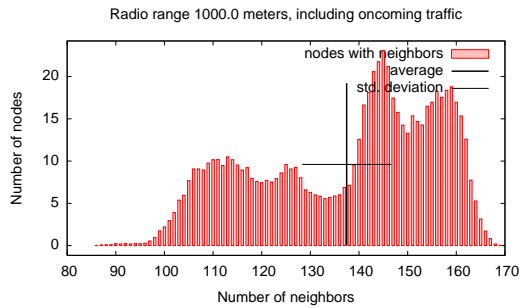
Average:	17.14
Variance:	18.19
Standard deviation:	4.26



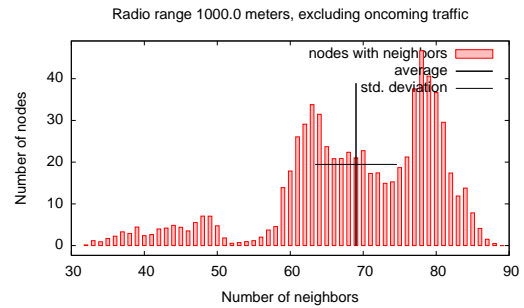
Average:	68.20
Variance:	117.36
Standard deviation:	10.83



Average:	34.38
Variance:	46.20
Standard deviation:	6.80



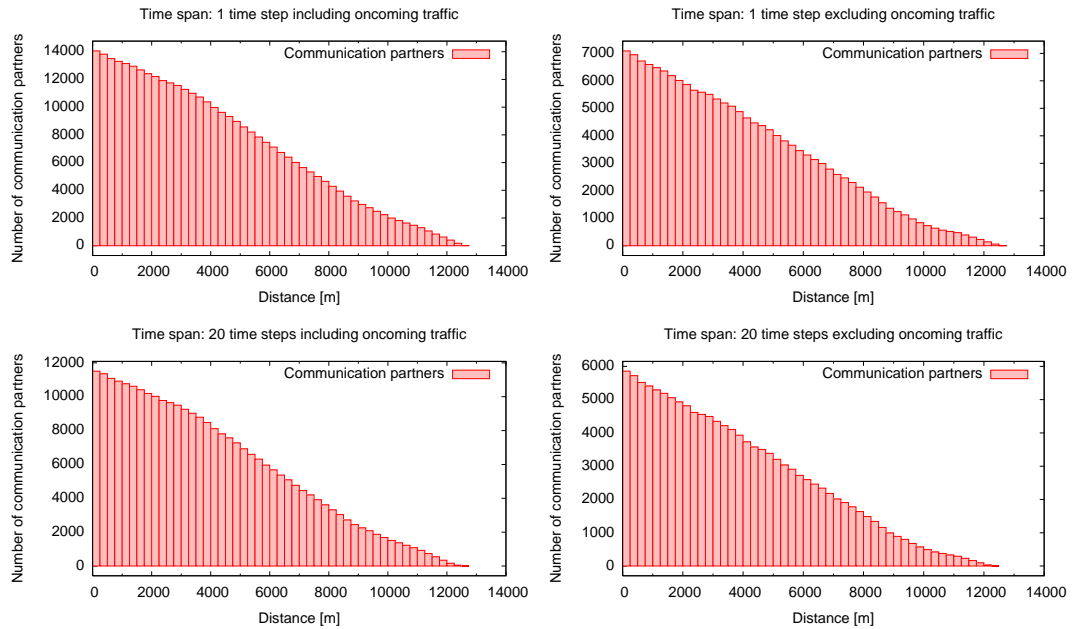
Average:	137.46
Variance:	334.42
Standard deviation:	18.29



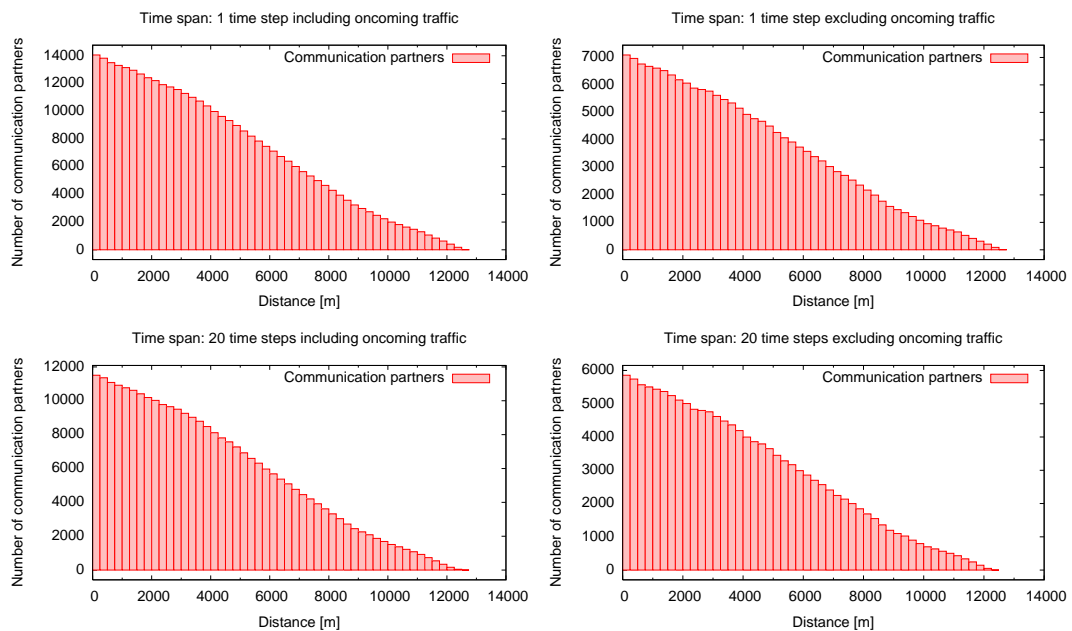
Average:	69.01
Variance:	125.55
Standard deviation:	11.21

B.15.4. Communication partner histogram

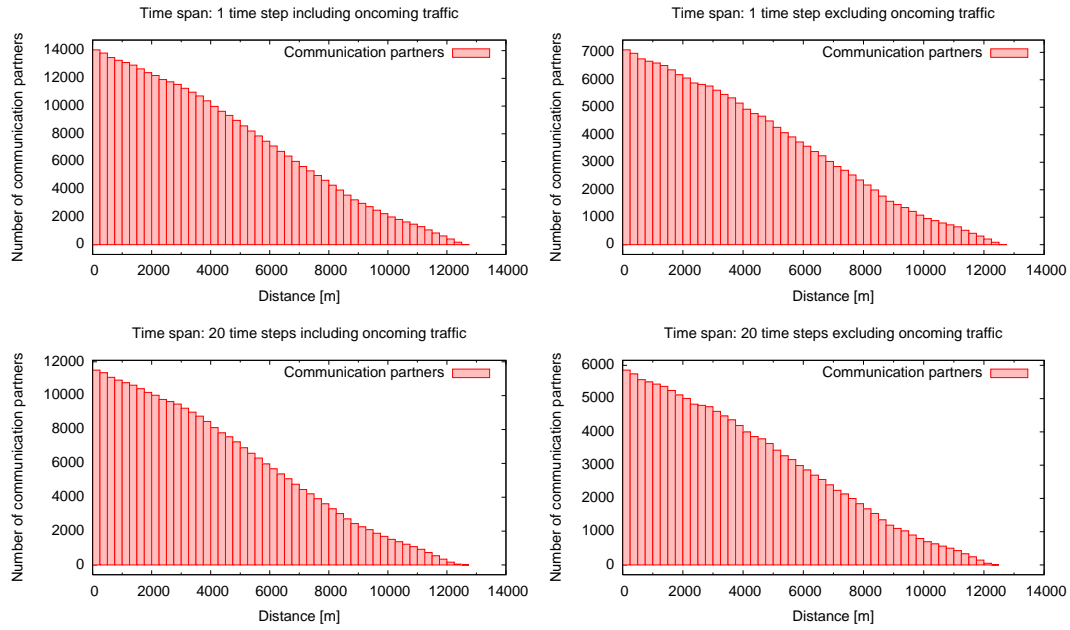
Radio range: 250.0 meters, bin size: 250.0 meters



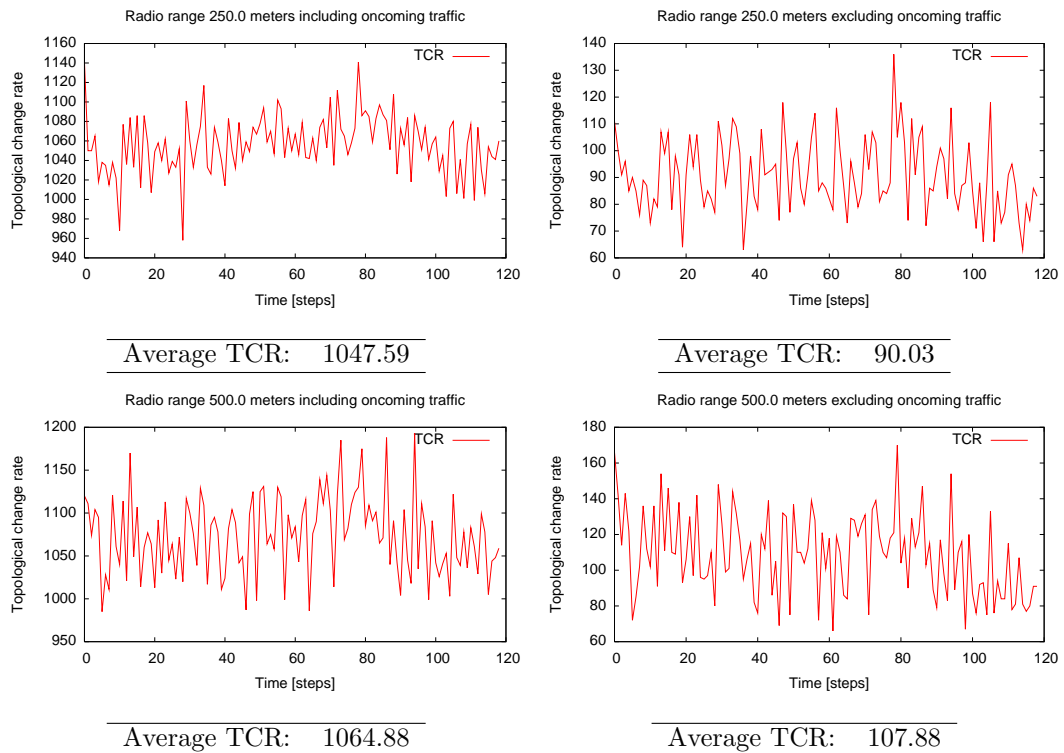
Radio range: 500.0 meters, bin size: 250.0 meters

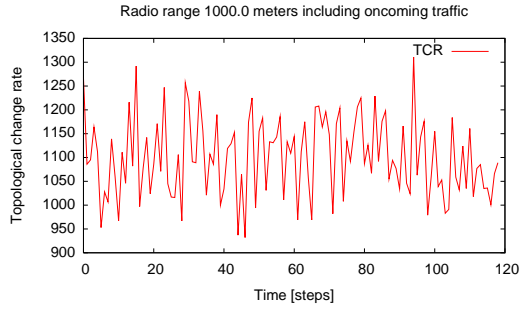


Radio range: 1000.0 meters, bin size: 250.0 meters

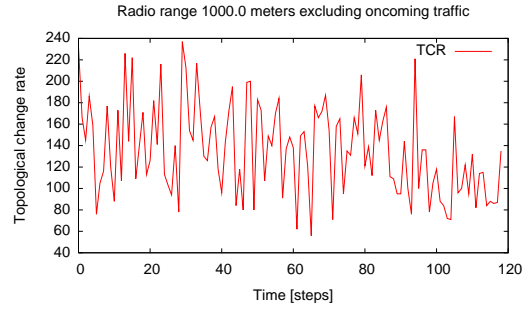


B.15.5. Topological Change Rate (TCR)



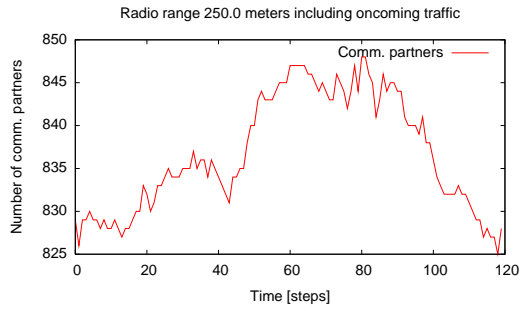


Average TCR: 1091.47

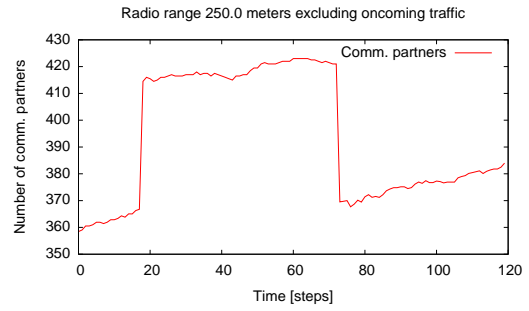


Average TCR: 134.47

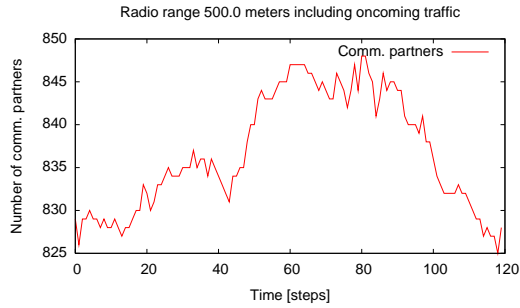
B.15.6. Total number of communication partners



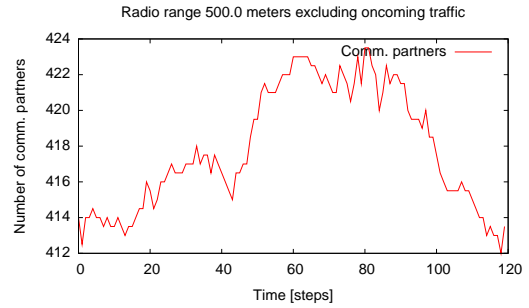
Avg. comm. partners: 836.74
Avg. active nodes: 837.74



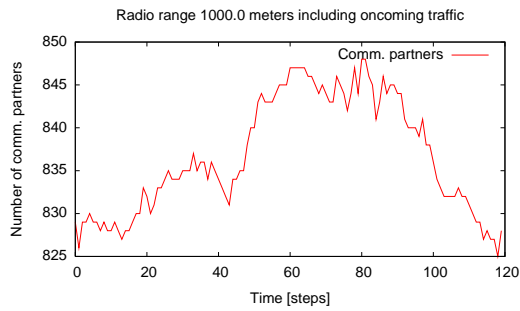
Avg. comm. partners: 393.55
Avg. active nodes: 837.74



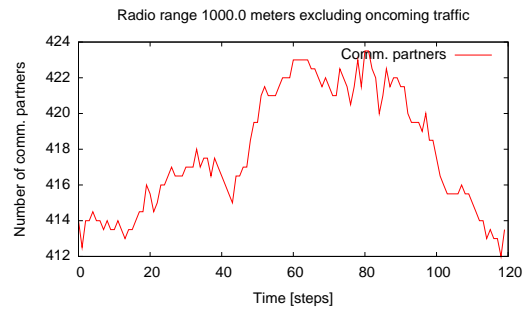
Avg. comm. partners: 836.74
Avg. active nodes: 837.74



Avg. comm. partners: 417.87
Avg. active nodes: 837.74

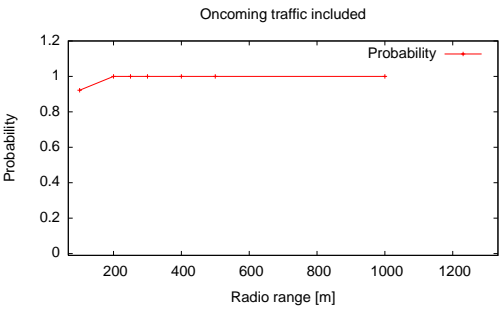


Avg. comm. partners: 836.74
Avg. active nodes: 837.74

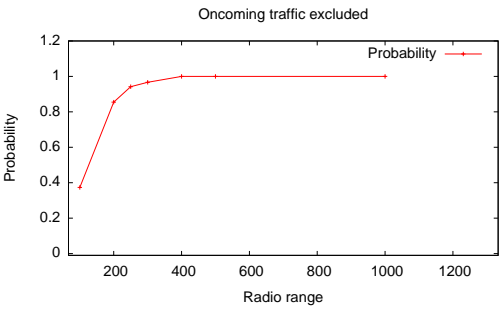


Avg. comm. partners: 417.87
Avg. active nodes: 837.74

B.15.7. Probability of being able to communicate with an arbitrary node



100.0 m:	0.92
200.0 m:	1.00
250.0 m:	1.00
300.0 m:	1.00
400.0 m:	1.00
500.0 m:	1.00
1000.0 m:	1.00



100.0 m:	0.37
200.0 m:	0.85
250.0 m:	0.94
300.0 m:	0.97
400.0 m:	1.00
500.0 m:	1.00
1000.0 m:	1.00